



December 2008

Third Quarter 2008 Total Fund Review Arizona State Retirement System

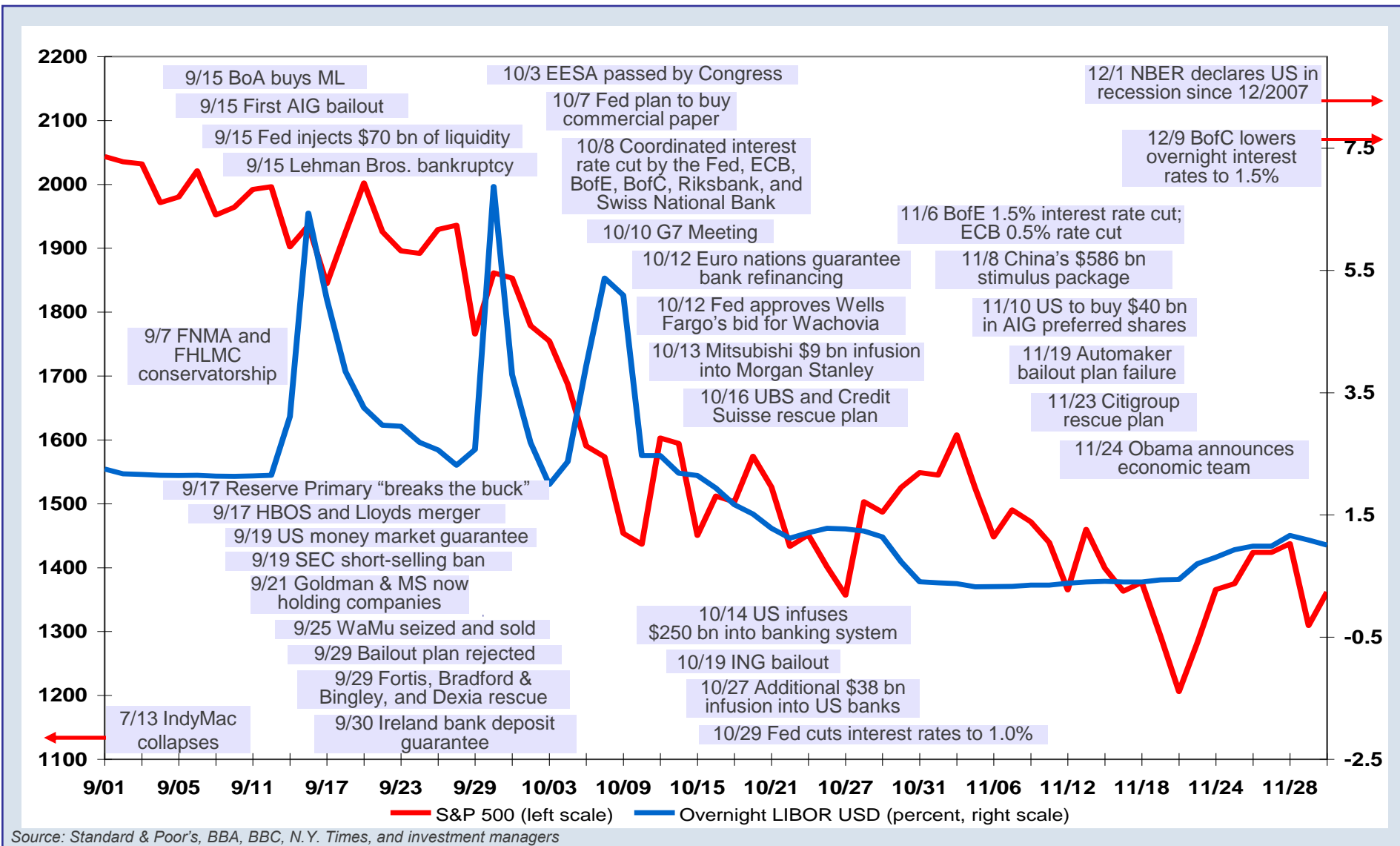
Terry Dennison, Los Angeles

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Financial Stress and Deleveraging

Ominous Times – In Only a 3-Month Period!

Timeline of Recent Events vs S&P 500 TR Index and Overnight LIBOR



Focus: What Happened?

Major Steps – Phase 1

Period of Cheap Money and Easy Credit

Low inflation, generous monetary policy, high risk appetite, development of financial industry and banished risk appreciation create an asset and housing bubble.

Rise of CDOs

Investors buy collateralized debt obligations (CDOs), which are complicated securities based on pools of mortgages. CDOs were rated AA and AAA and considered as safe as Treasuries, despite inherent risk.

Excessive Leverage Becomes Pervasive

Firms borrow to load up on CDOs and real estate. Lehman Brothers was leveraged more than 30 to 1. AIG sells credit-default swaps (CDSs), derivatives designed to protect investors from failures.

The Mortgage Collapse

Consumers who borrowed beyond their means begin to default as adjustable interest rates set in. Lenders like Washington Mutual and Countrywide Financial see their stock prices sink.

The Bubble Bursts

Borrowers owe more than their homes are worth and defaults begin to rise. Prices drop even lower, creating a downward spiral.

Finance Takes the Next Hit

Rising delinquencies mean that CDOs lose value. The investment banks must take write-downs and raise capital; the rout begins. Bear Stearns goes down, as does Lehman Brothers.

Focus: What Happened?

Major Steps – Phase 2

The Freeze

Some credit markets, including auction-rate securities, seize up, which hurt municipalities. Large banks also tighten credit lending. The spreads on junk bonds and higher-rated corporate bonds widen, which raises costs for businesses.

Begin the Restructuring

Fannie and Freddie are made federal wards in an attempt to stop the crisis. Next, the Fed steps in to save AIG before rolling out a \$700 billion bailout. The markets weaken with worry.

Treasury and Fed Intervention

Further actions taken to alleviate the financial crisis included reducing the Fed funds rate; providing greater access to the discount window; injecting liquidity into the system; stabilizing the money market, commercial paper and deposit accounts; and tightening financial regulations (e.g., short-sell ban).

The Market Gets Volatile

Volatility in the US stock market hits record highs as investors head to the sidelines and park their money in 3-month Treasuries at less than 1% interest until market stability is restored.

The Deleveraging Spiral

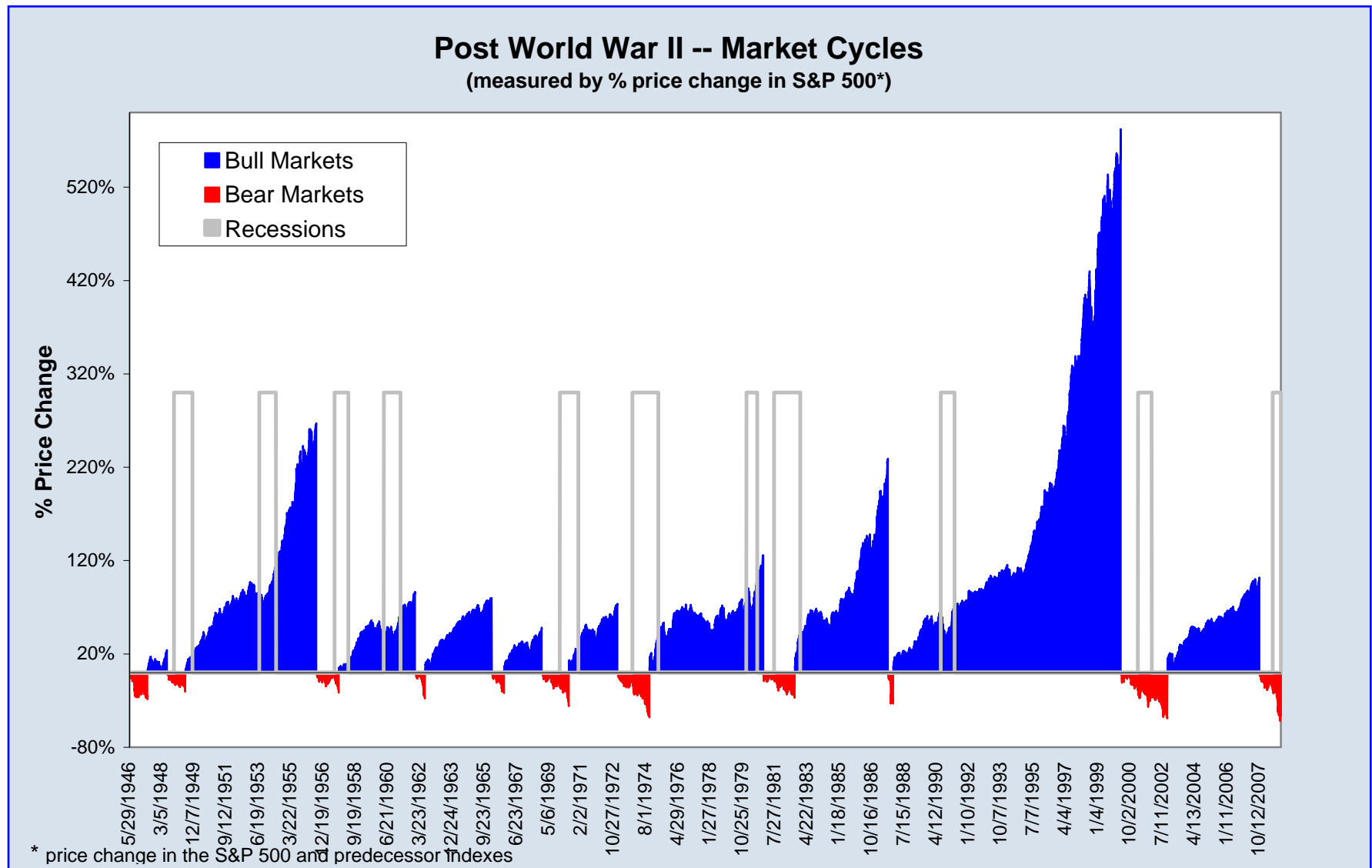
Banks such as Washington Mutual and Wachovia are under stress. They need more capital to protect against potential losses. They begin selling assets, which drives asset prices down and results in a need for more cash and asset sales.

From Wall Street to Main Street

As lending tightens, short-term loans, a business necessity on Wall Street and Main Street, become less available. Lack of access to capital causes a slowdown in growth, and an increase in layoffs could follow as companies trim costs.

Review of Past Market Cycles

Bull, Bear, Recession



Review of Past Market Cycles

Bull, Bear, Recessions

Post World War II - Market Cycles

(measured by % price change in S&P 500)

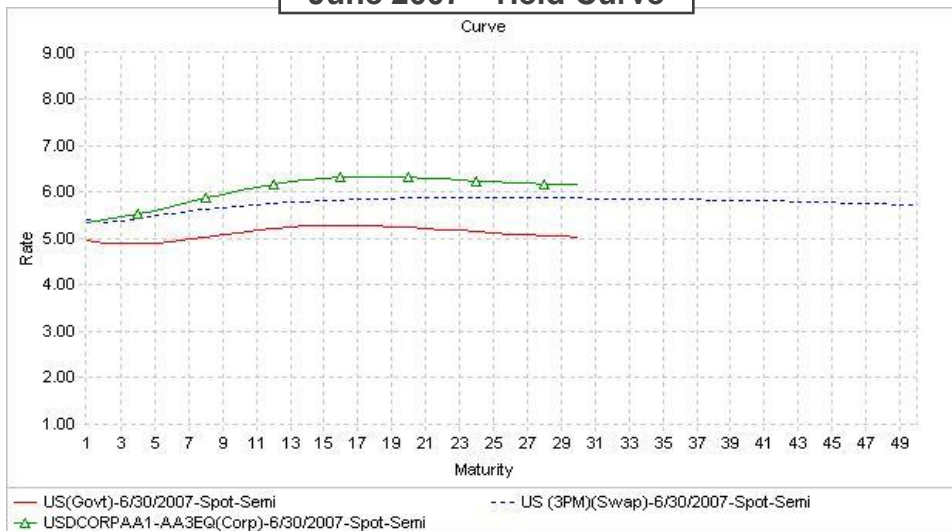
Cycle	Bear Start	% Price Change	Elapsed Days	Bull Start	% Price Change	Elapsed Days
1	5/29/1946	-28.5%	355	5/19/1947	23.9%	393
2	6/15/1948	-20.6%	363	6/13/1949	267.1%	2,607
3	8/2/1956	-21.6%	446	10/22/1957	86.4%	1,512
4	12/12/1961	-28.0%	196	6/26/1962	79.8%	1,324
5	2/9/1966	-22.2%	240	10/7/1966	48.0%	784
6	11/29/1968	-36.1%	543	5/26/1970	73.5%	961
7	1/11/1973	-48.2%	630	10/3/1974	125.6%	2,248
8	11/28/1980	-27.1%	622	8/12/1982	228.8%	1,839
9	8/25/1987	-33.5%	101	12/4/1987	582.1%	4,494
10	3/24/2000	-49.2%	929	10/9/2002	101.5%	1,826
11*	10/9/2007	-51.9%	396			
10 Complete Post WWII Market Cycles						
Average		-31.5%	443	161.7%		1,799
Minimum		-20.6%	101	23.9%		393
Maximum		-49.2%	929	582.1%		4,494

* to 11/8/2008 low close of 752.44

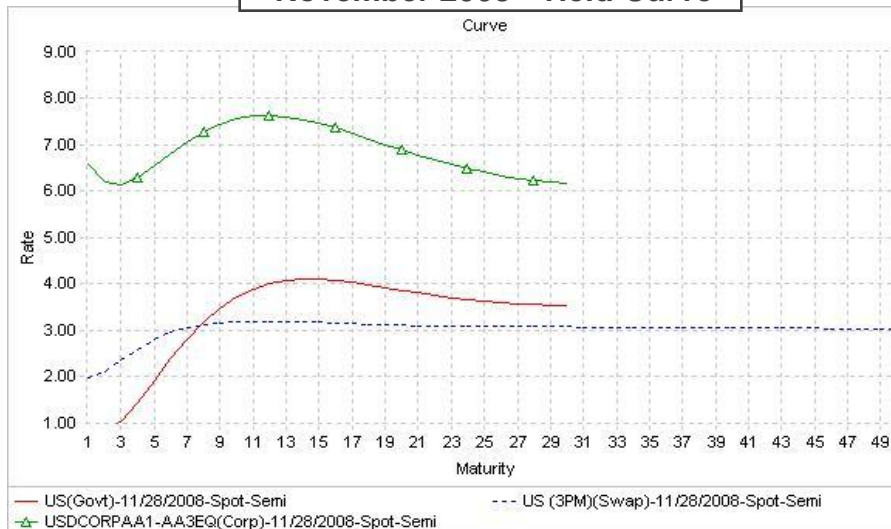
Yield Curve and Credit Spread

The State Before Liquidity Crisis and Today

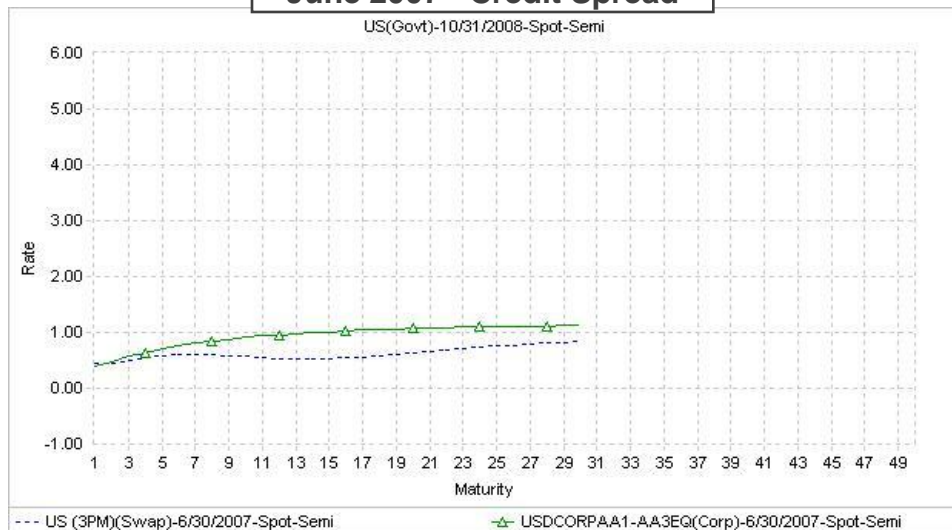
June 2007 - Yield Curve



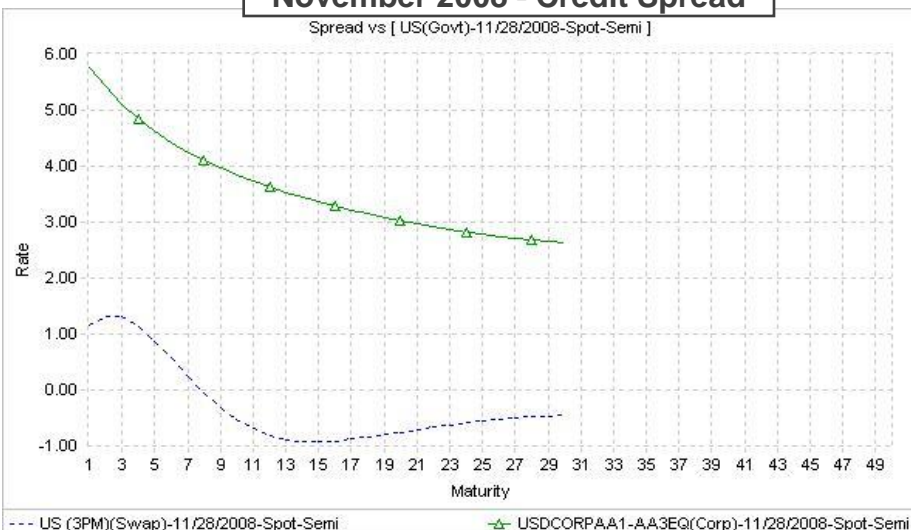
November 2008 - Yield Curve



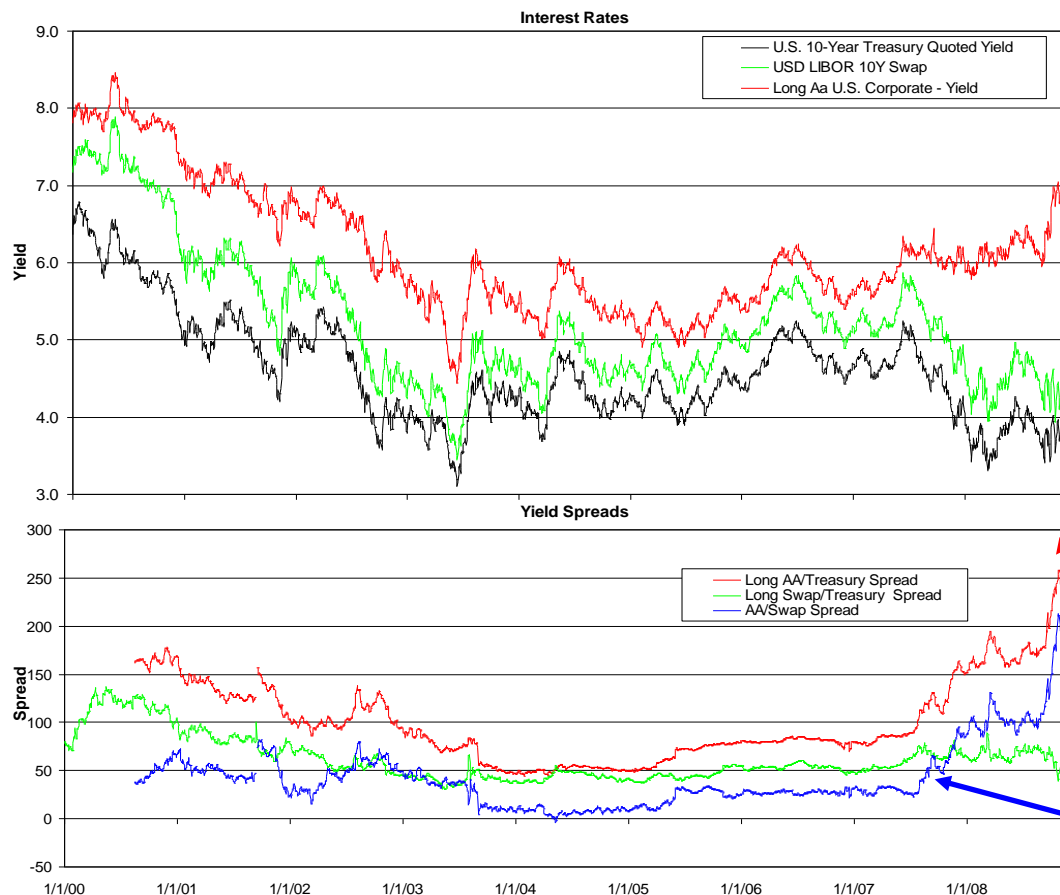
June 2007 - Credit Spread



November 2008 - Credit Spread



Credit/Liquidity Crunch



Corporate bond spreads widened to more than twice their average level.

Interest rate swaps have generally maintained their stable spread versus Treasuries. Trading imbalances pushed swap yields below Treasuries in October and November.

Credit spreads versus swaps widened to their highest level this decade.

Credit risk premiums are at uncharted levels.

	Latest		Minimum		Maximum		Average	Standard Deviation	
Yields									
US 10 Year Treasury Yield	2.96	11/28/2008	2.96	11/28/2008	6.79	1/21/2000	4.60	0.70	
USD LIBOR 10Y Swap	3.15	11/28/2008	3.15	11/28/2008	7.89	5/18/2000	5.23	0.89	
Long Aa U.S. Corporate - Yield	6.30	11/28/2008	4.44	6/12/2003	8.47	5/18/2000	6.16	0.83	
Spreads									
Long Swap/Treasury Spread	19	11/28/2008	14	11/25/2008	137.0	5/15/2000	62	23	-1.8 SD
Long AA/Treasury Spread	266	11/28/2008	44	1/28/2004	272.8	11/21/2008	102	44	3.7 SD
AA/Swap Spread	247	11/28/2008	-4	5/7/2004	251.0	11/20/2008	43	35	5.7 SD

Source: Barclays Capital - LehmanLive.com

New Appreciation of Risk

Key Factors

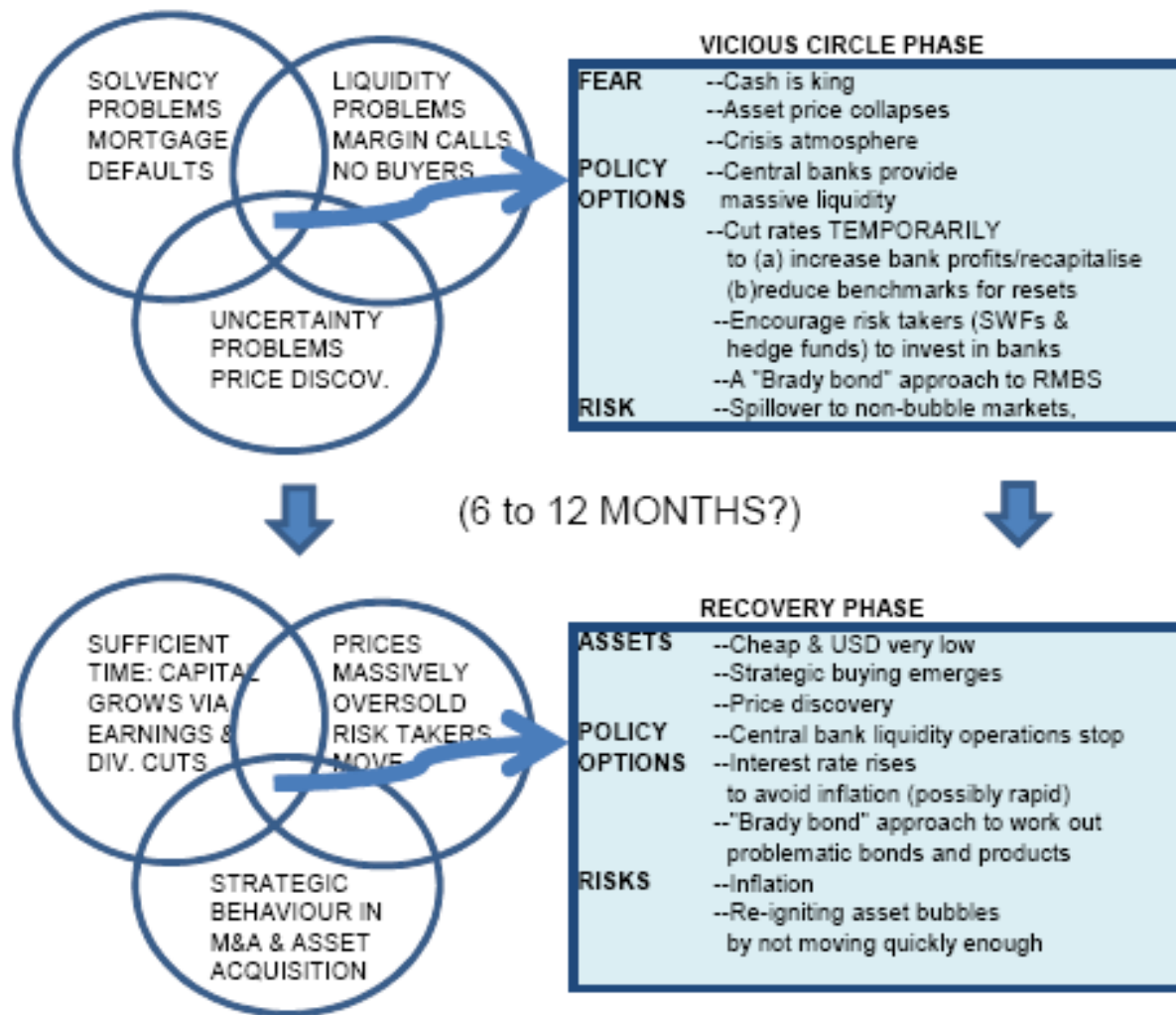
- Confidence Risk
 - Counterparty risk
 - Financial system transparency
 - Shadow banking - e.g., broker, dealer, non-banking mortgage lender, hedge funds
- Market and Liquidity Risk
 - Increasing refinancing risk and costs
 - Reassessment of risk and liquidity premiums
- Global Risk
 - Deleveraging process is not limited to US and subprime mortgages
 - Spillover to Europe, Asia, emerging markets
 - Impacting other than financial sectors
- Macroeconomic Risk
 - Economic downturn
 - Impact of monetary policy
 - Public sector budget deficits
 - Negative trade balance

What's Ahead of Us?

Future Approaches and Issues

- IMF raises their total US-originated credit crisis assets loss from \$945 billion (April 2008) to \$1.4 trillion (October 2008)
- The IMF also speculates that over the next few years \$675 billion of additional capital will be needed to support modest credit growth
- The restoration of financial stability requires a decisive and internationally coherent set of policies in:
 - strengthening the capital base of viable institutions
 - reinforcing troubled assets by using public sector balance sheets
 - improving funding availability to stabilize bank balance sheets
- Orderly resolution of nonviable financial institutions
- Reduction of counterparty risks through centralized clearing organizations
- The most significant risk remains a worsening of the adverse feedback loop between the financial system and the real economy

Requirements of Recovery Economic Model



Source: OECD (Organization for Economic Co-operation and Development)

Economic Update

3Q2008 and

Year to Date Ending November 30, 2008 Where Available

Economic Highlights

Positive

- In early September, the US government nationalized Fannie Mae and Freddie Mac
- Fed and banks across the globe continued to pump liquidity into the markets
- US government announced a \$700 billion bailout plan; allocation of capital TBD
- Inflation fears have abated; Core CPI eased to 2.5% during the quarter and 2.2% in October
- Oil prices hit an all time high over \$147/barrel during the third quarter before dropping to current price of \$47/barrel

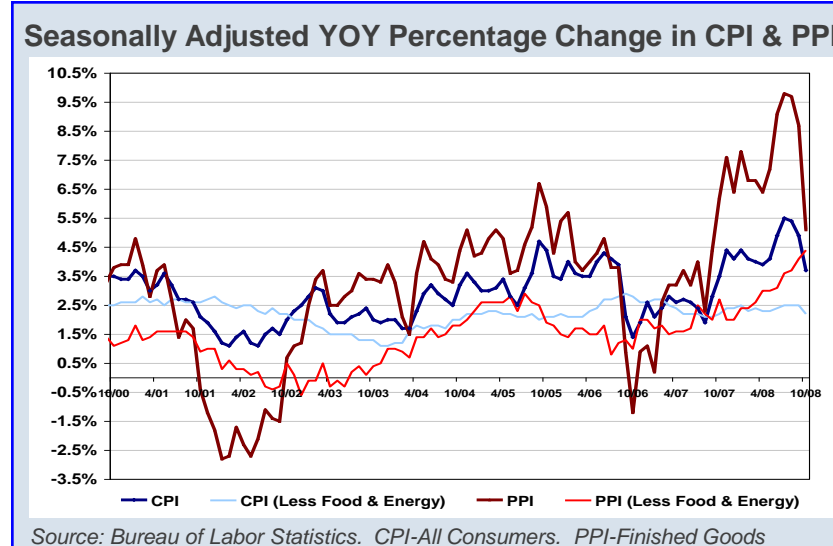
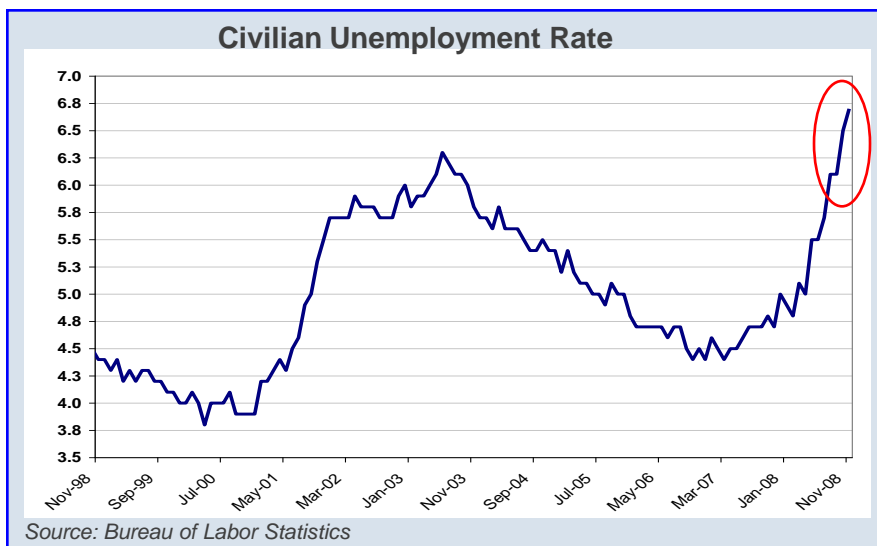
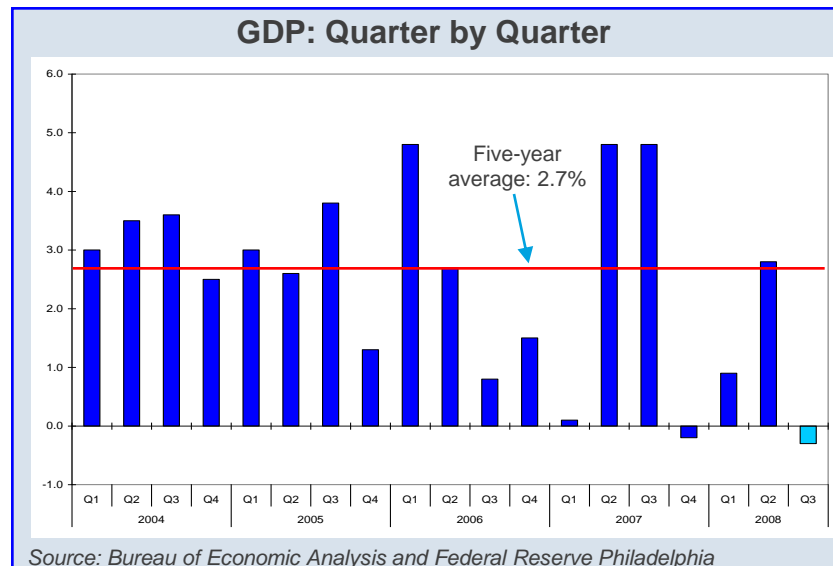
Negative

- The economy is softening in a rapid pace, GDP contracted 0.3% during the third quarter
- Unemployment rate reached its highest level in 5 years, to 6.1% in September and 6.7% in November
- Consumer confidence rebounded during the quarter, but declined in October to an all-time low of 38.8. As of November it was up to 44.9
- Housing market showed no signs of recovery, and new home sales dropped to a 17-year low
- Retail sales dropped to a 17-year low and fell 4.1% annually in October

US Economic Update

Signs of a Troubled Economy

- The economy weakened further during the quarter amid a drop in consumer spending, rising unemployment, falling industrial production and the ongoing housing recession; the NBER announced that the U.S. has been in a recession since Dec 2007. The BEA also reported that the economy contracted 0.3% in the third quarter.
- Headline inflation dropped to 3.7% year-over-year in October. On a month-to-month basis, it was the largest 1-month decrease since 1947. Core inflation decreased to 2.2%. While food prices continued to increase, the index for energy dropped 8.6% in October.
- The unemployment rate jumped to 6.7% by the end of November, the worst since 1981 - 1982. Non-farm payroll employment fell sharply by 533,000 in November. As companies accelerated cuts, job losses extended across all the major industry sectors.

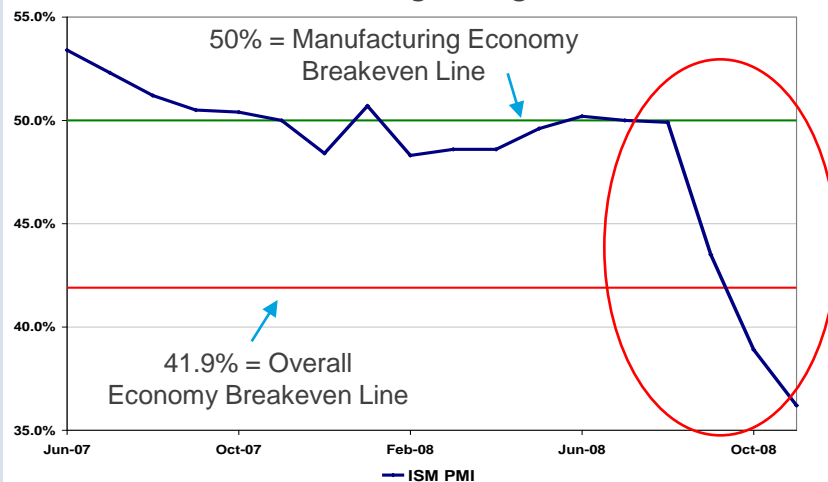


US Economic Update

Fragility of US Consumers

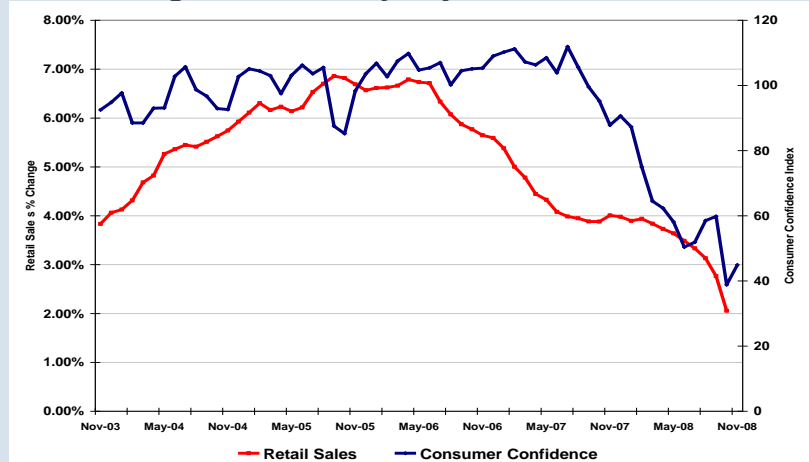
- In November, the consumer confidence index increased to 44.9, after an all-time low of 38.8 in October. Adjusted retail sales excluding food services decreased 3.1% in October through weakened sales in the motor vehicle, furniture, building material, and department store industries.
- After decreasing 2.7% for the third quarter, real disposable income increased 1.0% in October. Consumer spending dropped 0.5% in October after a 1.1% decrease in the third quarter. High prices with lowered earnings caused the first quarterly drop in personal spending since the 1990 - 1991 recession.
- The Institute for Supply Management's Purchasing Managers Index recorded 36.2% in November, the lowest reading since 1982. This indicated a significantly fast rate of decline in manufacturing and a departure from the first half's trend of minimal growth or contraction.

ISM's Purchasing Managers Index



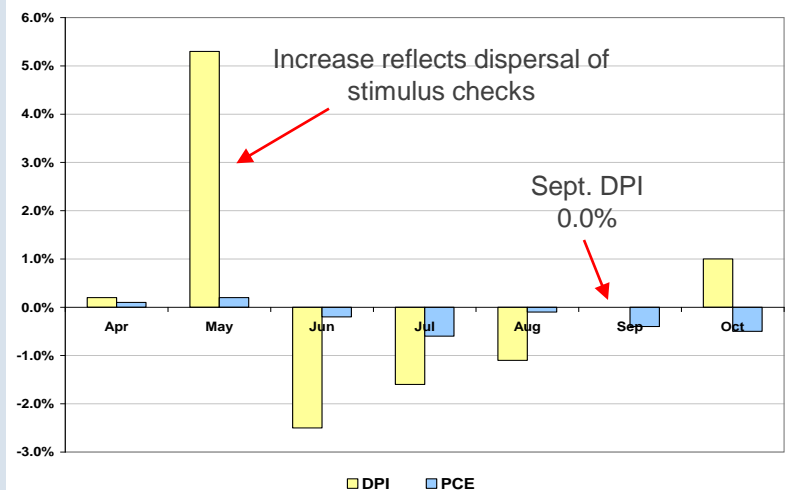
Source: Institute for Supply Management

Consumer Confidence Index vs Smoothed YOY % Change in Seasonally Adjusted Retail Sales



Source: The Conference Board and U.S. Census Bureau

Seasonally Adjusted Real DPI and PCE Monthly Changes



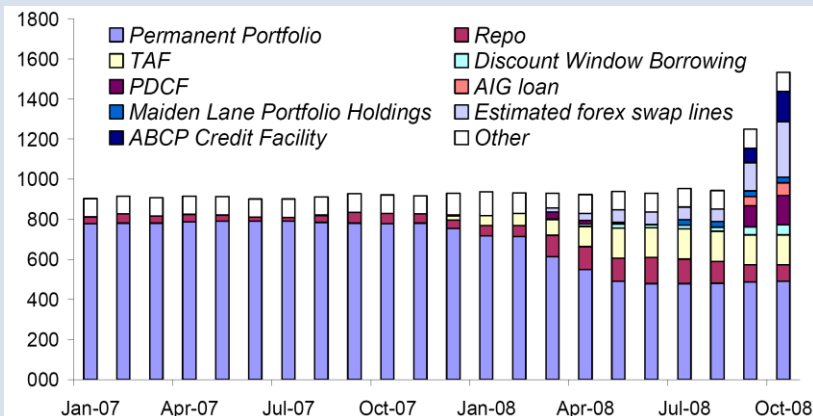
Source: Bureau of Economic Analysis

U.S. Economic Update

Fed and Government Intervention

- On 10/1/08, total assets on the Federal Reserve's balance sheet were \$1.5 trillion, a \$597 billion increase from just two months before. The Fed increased efforts to mitigate stresses in both the financial and non-financial sectors of the economy, but such large commitments have raised concerns about increased risk transferred from the private to the public sector.
- Total public debt nearly doubled this past decade, reaching \$10.0 trillion on 9/30/08. Federal debt held by the public and intragovernmental holdings totaled \$5.8 trillion and \$4.2 trillion respectively
- Amid a growing credit crisis, the Fed cut the federal funds rate to 1.0% from 1.5% on Oct. 29th. This matched the lowest level in the lending rate ever; the last time it was at 1.0% was in June of 2004

Total Assets on Federal Reserve's Balance Sheet

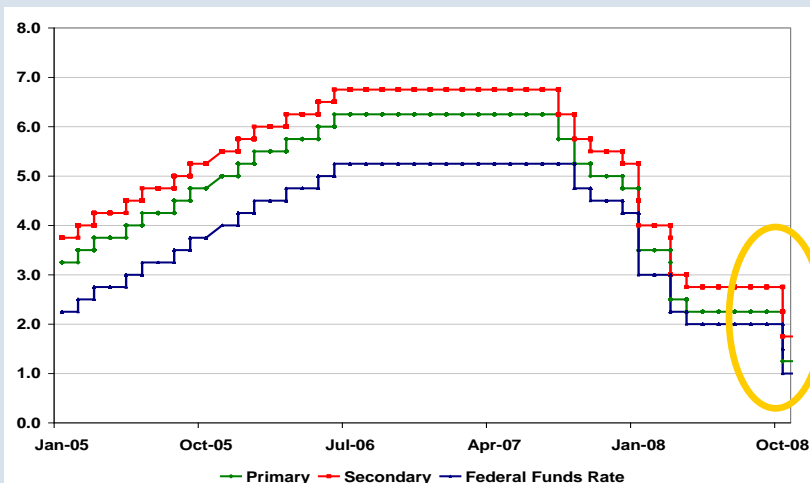


Sources: Federal Reserve; and Morgan Stanley.

ABCP = asset-backed commercial paper; AIG = American International Group; PDCF = Primary Dealer Credit Facility; TAF = Treasury Auction Facility.

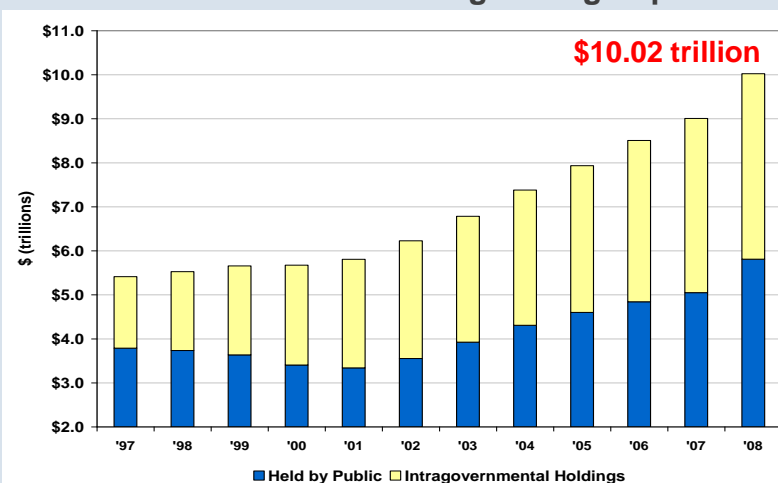
Copyright : International Monetary Fund – "Global Financial Stability Report" Oct '08

Federal Funds and Discount Rate



Source: Federal Reserve Bank of New York

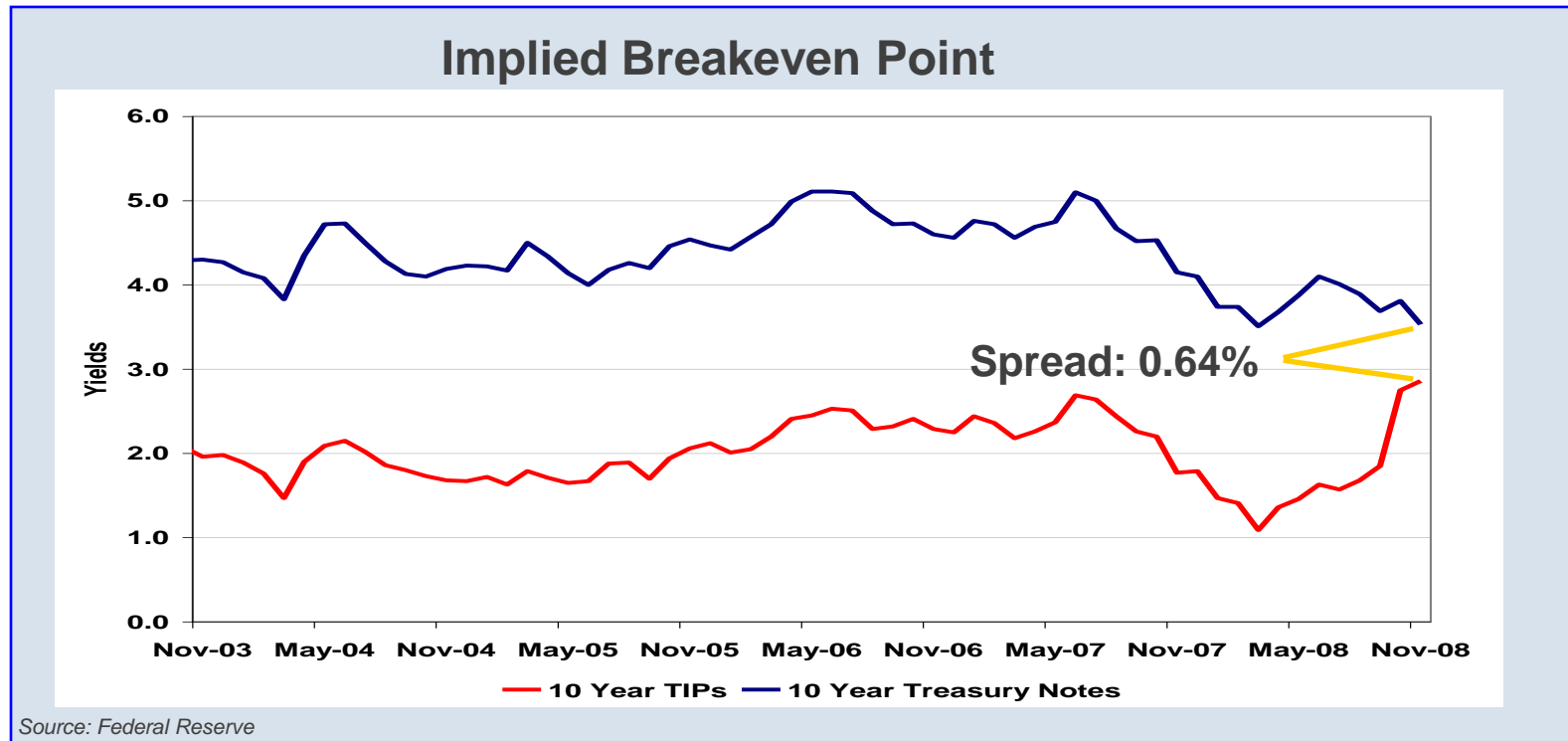
Total Public Debt Outstanding ending September



Source: www.treasurydirect.gov

U.S. Economic Update

Inflation Expectations



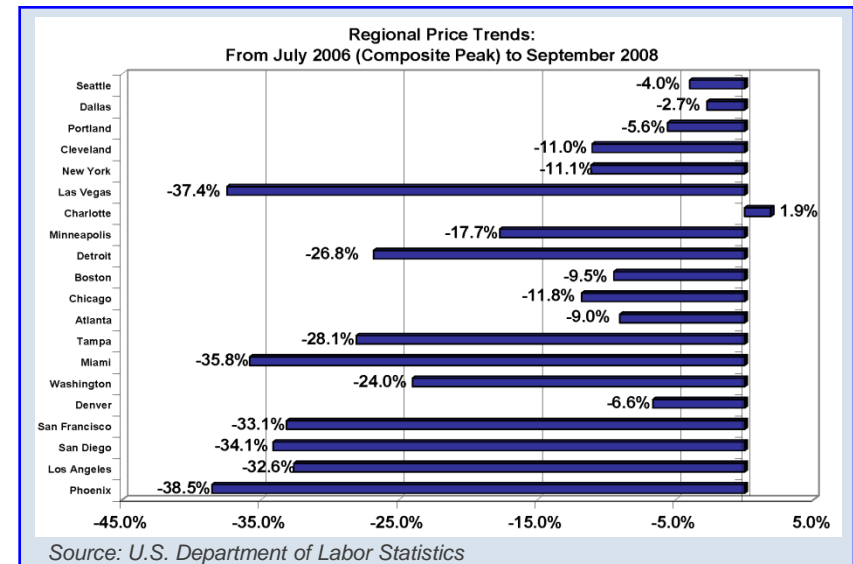
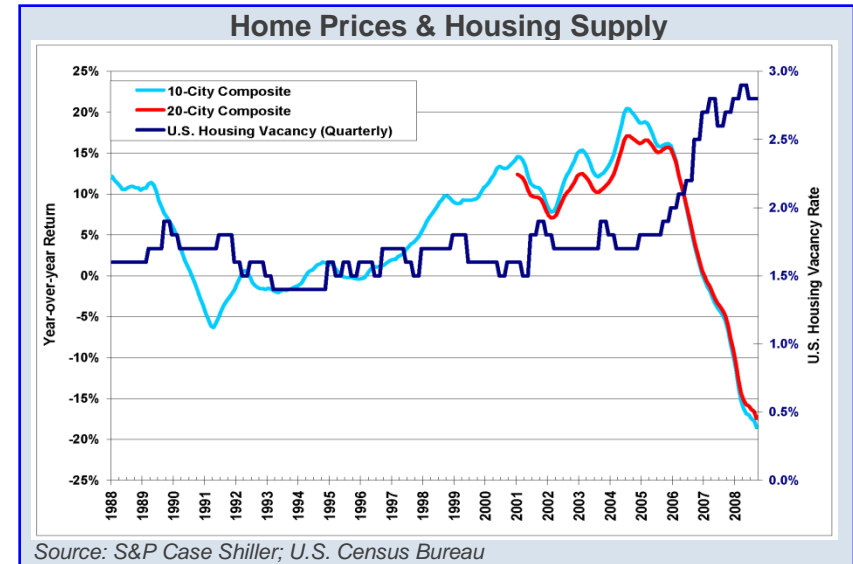
- Implied 10 year inflation expectations can be seen from the spread between the nominal 10 year treasury note yield and the 10 year TIPS
- Understanding that the nominal yield consists of the real rate of interest and inflation compensation, if actual 10 year inflation was at 0.64%, the realized returns from the 10 year nominal and TIPS would be exactly the same
- In November, inflation expectations significantly decreased by around 180 basis points from that of June

Real Estate

S&P Case-Shiller Home Price Index

Residential Real Estate

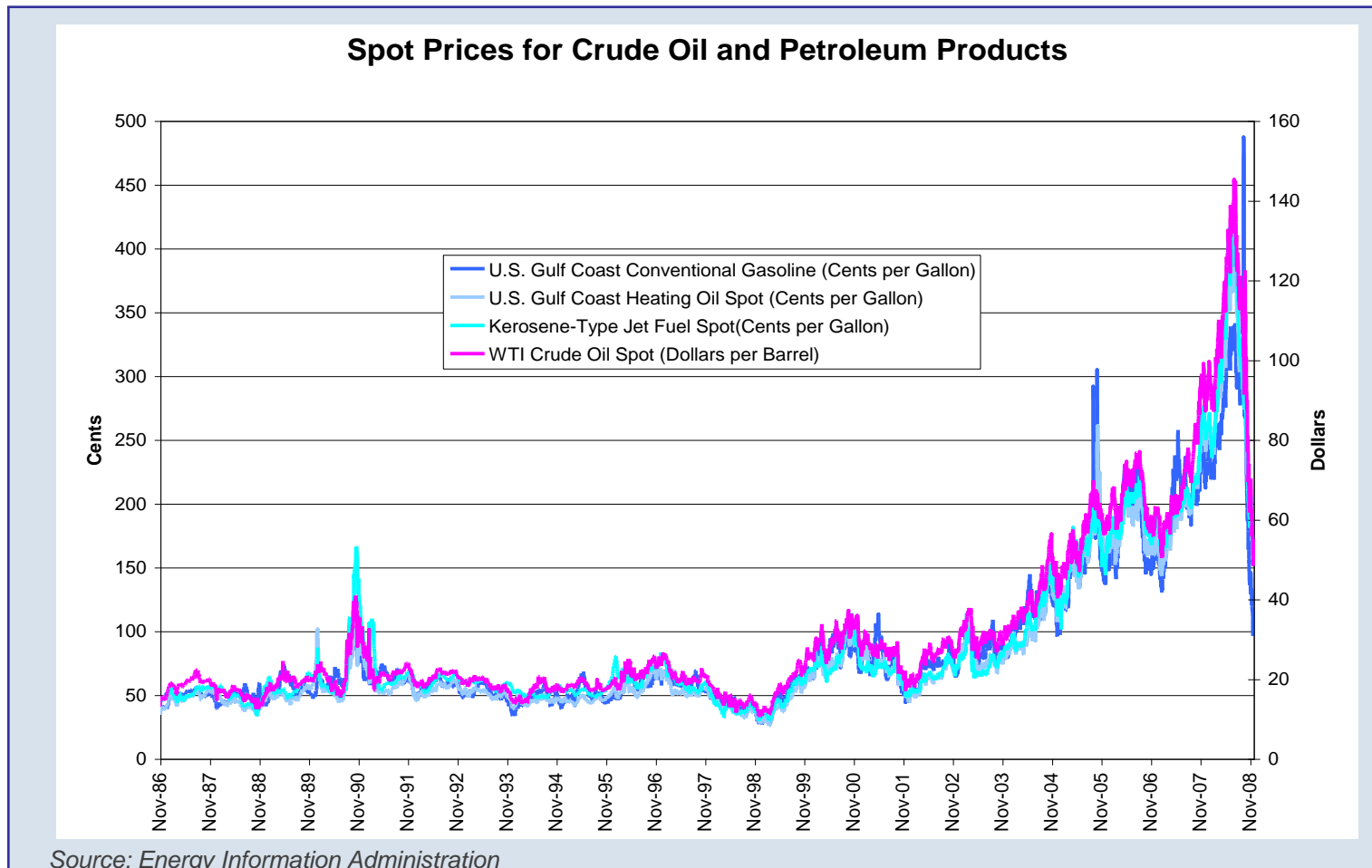
- The S&P Case-Shiller Home Price Index for September continued to reflect extraordinary weakness in the nation's housing markets. All of the 20 metro areas tracked report year-over-year (YOY) declines. The 20-City Composite fell 17.4% YOY and the 10-City Composite fell 18.6% YOY
- Existing home sales were down in August as strained mortgage credit cut activity. Sales rose in the Midwest and South but fell in the Northeast and West regions
- Homeowner housing vacancy rates continued to climb during the year. The rate in cities was higher than in the suburbs
- July '06 (20-City Composite Peak) to September '08**
Most metro areas showed substantial declines from the July 2006 peak. The 20-City Composite is down 21.8% and the 10-City Composite is down 23.4%. Eight of the 20 metro areas reported declines of more than 25% – Phoenix, Miami, and Las Vegas lost the most, each declining over 35%, while Charlotte held up best, gaining 1.9% during this time period



Commodities

Oil Continues to Fall

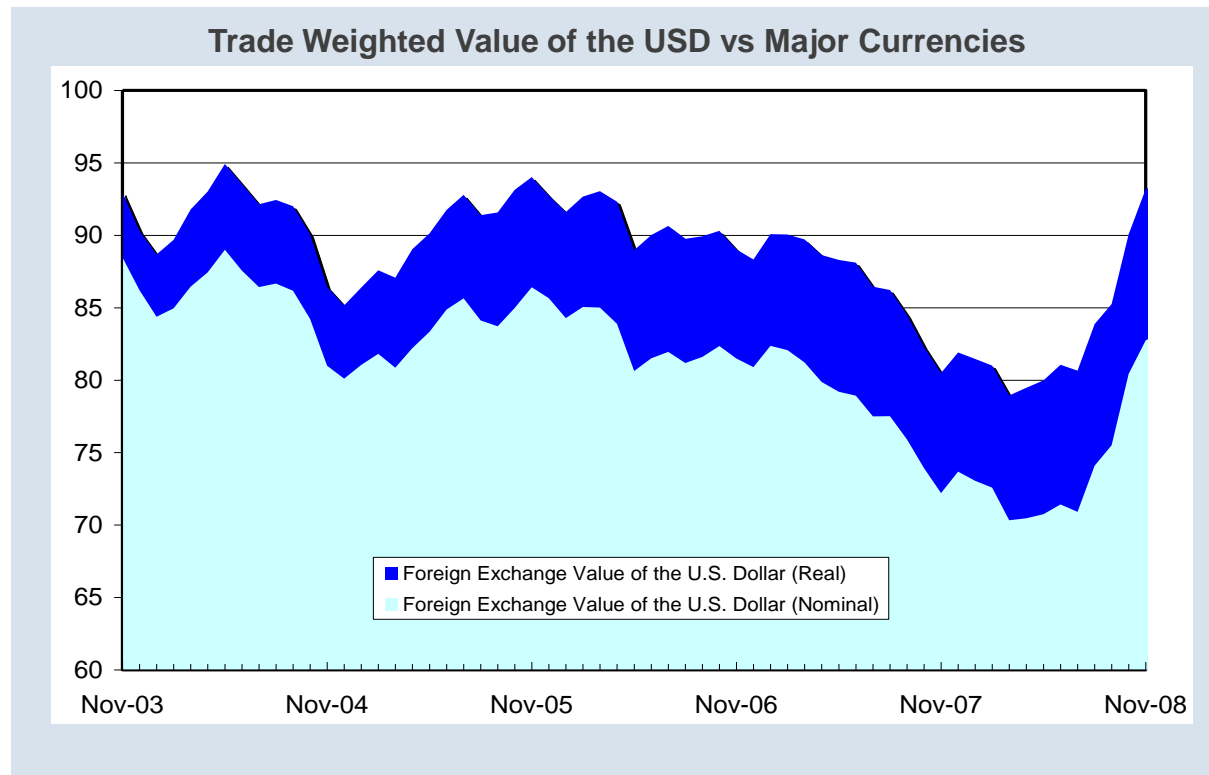
- Crude oil and petroleum products have continued their declines from record highs as economic concerns deepened and demand slowed



Focus: Currency

Dollar as Safe-Haven Currency

- As the third quarter wound down, uncertainty surrounded the dollar as Congress grappled with a proposed financial system bailout plan
- Since the end of the third quarter, the dollar has continued to rise as global economic concerns deepened, leading investors to seek safety in the dollar. Relative to other major currencies, the dollar (real) rose 9.8% and 18.6% since September and March respectively



Securities Markets

3Q2008 and

Year to Date Ending November 30, 2008 Where Available

Market Highlights

Positive

- Treasuries outperformed all spread sectors as investors fled to safety: 2.3% in 3Q2008 and 10.0% YTD
- Dollar is safe-haven currency; the trade-weighted USD rose 5% during the quarter and 18.6% since its low in March

Negative

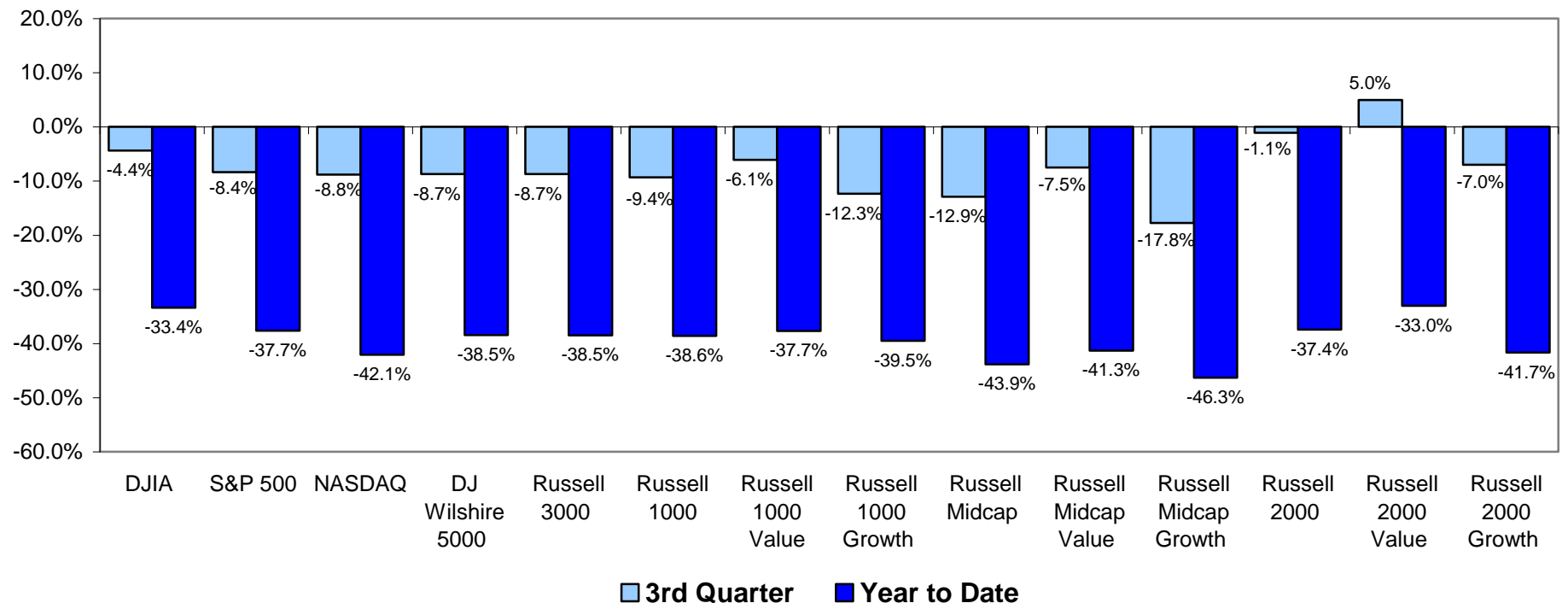
- Domestic equity continued to deteriorate; S&P posted -8.4% for 3Q2008 and -37.7% YTD
- International markets (MSCI EAFE) suffered significantly, posting -20.5% for 3Q2008 and -46.3% YTD
- Emerging markets were hit hard; Russia lost 71.6% YTD
- As credit spreads widened, high yield bonds posted significant losses of 31.4% as of YTD

U.S. Equity Struggles Across All Market Caps

Mid Cap Lagged Across Market Capitalization

- Fueled by the effects of the credit crisis and the collapse of several large financial companies as well as growing recessionary fears, US stocks fell across all market caps (large, mid, small) and investment styles (value, core, growth)
- The mid-cap sector has been hit the hardest in 2008, as the Russell Mid-Cap Growth is down 46.3% and the Russell Mid-Cap Index is down 43.9% through November 2008

Performance of U.S. Equity Indices

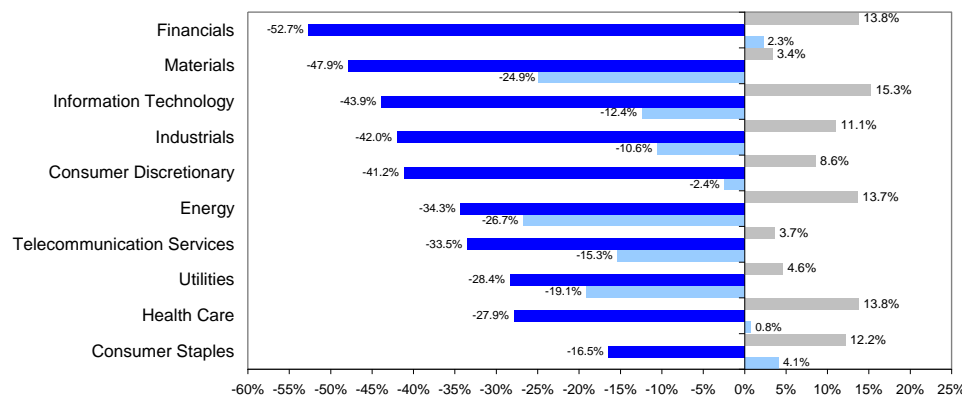


Large-Cap Stocks

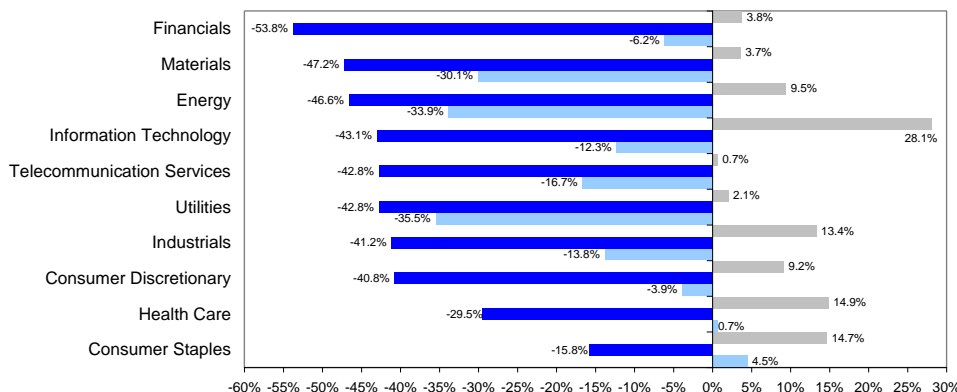
Weakest Performance in Financial and Materials

- The Russell 1000 Index is down -38.6% in 2008, with financials, materials, and information technology down -52.7%, -47.9% and -43.9% respectively
- The Russell 1000 Value Index (-37.7% return) has slightly outperformed the Russell 1000 Growth Index (-39.5% return) in 2008

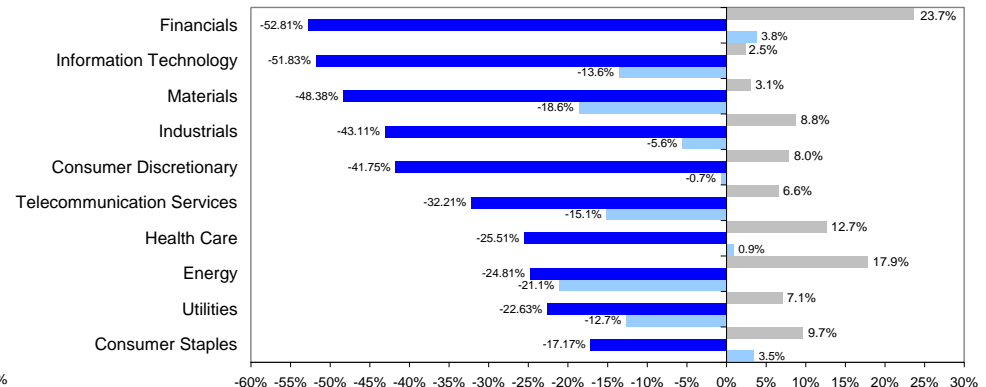
Large Cap Core Performance - Russell 1000 Index



Large Cap Growth Performance - Russell 1000 Growth Index



Large Cap Value Performance - Russell 1000 Value Index



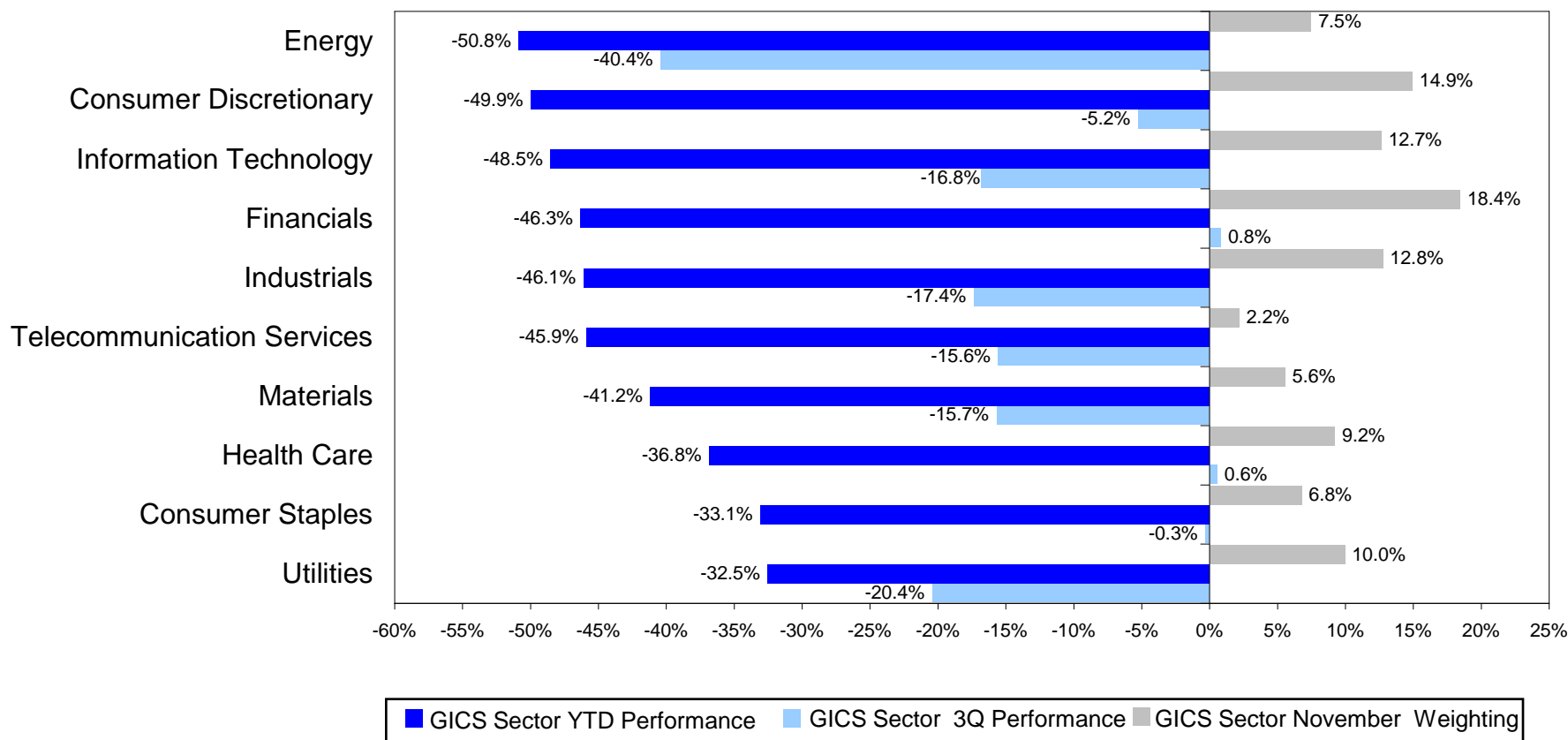
■ GICS Sector YTD Performance ■ GICS Sector 3Q Performance ■ GICS Sector November Weighting

Mid-Cap Stocks Punished

Energy and Consumer Discretionary Were the Worst Performers

- The Russell Mid Cap Core Index is down 43.9% in 2008
- For the year to date through November, energy, consumer discretionary, information technology, financials, industrials, and telecom have all posted losses in excess of 45%

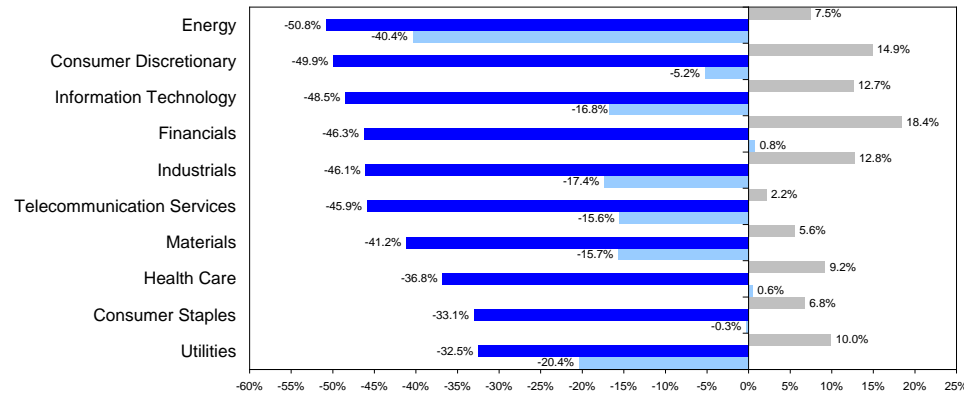
Russell Mid Cap Core Performance - Russell Mid Cap Index



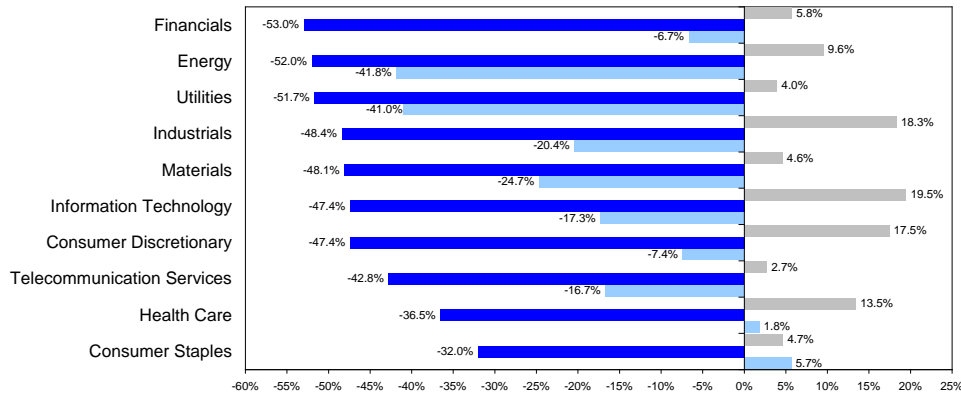
Mid-Cap Stocks Style Breakdown

- The Russell Mid Cap Value Index (-41.3%) has outperformed the Russell Mid Cap Growth Index (-46.3%) in 2008

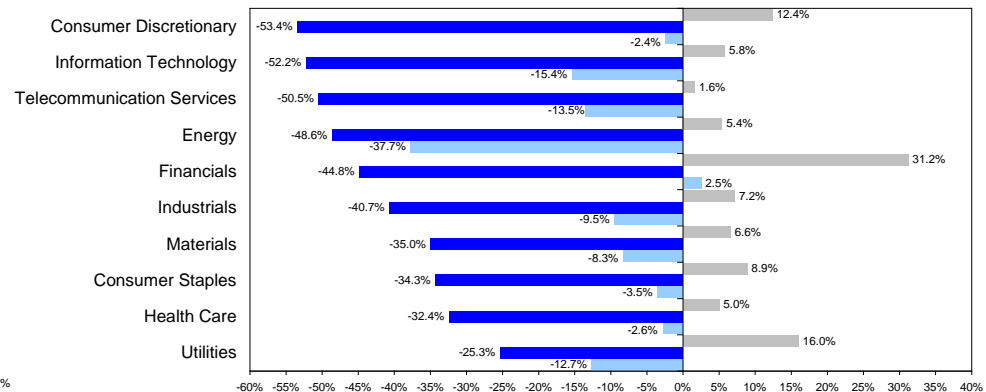
Russell Mid Cap Core Performance - Russell Mid Cap Index



Russell Mid Cap Growth Performance - Russell Mid Cap Growth Index



Russell Mid Cap Value Performance - Russell Mid Cap Value Index



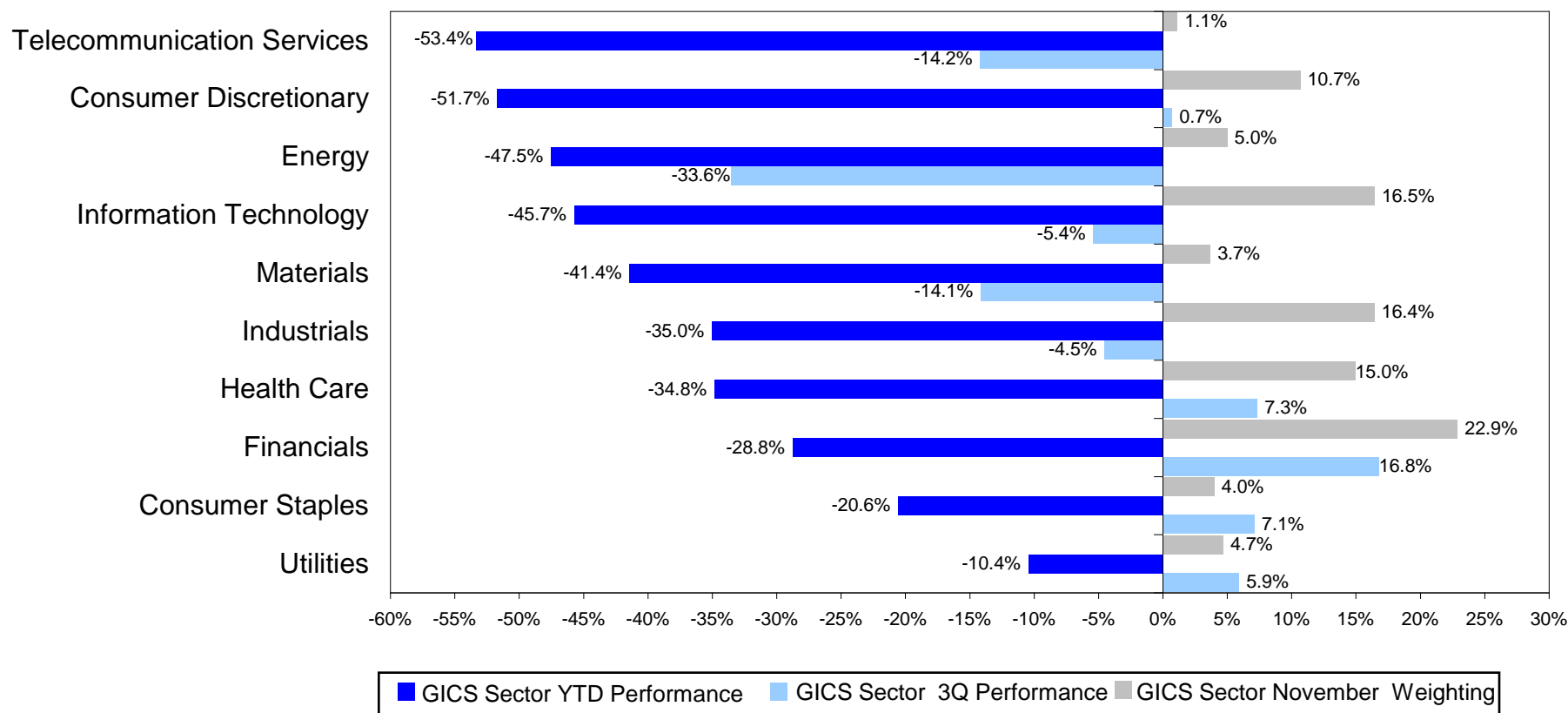
■ GICS Sector YTD Performance ■ GICS Sector 3Q Performance ■ GICS Sector November Weighting

Small-Cap Stocks

Utilities, Consumer Staples and Financials Show Strength

- Through November, the Russell 2000 Index has returned -37.4%
- Telecommunications, consumer discretionary, energy, and information technology are the most significant underperformers for the year, all losing more than 45% in 2008

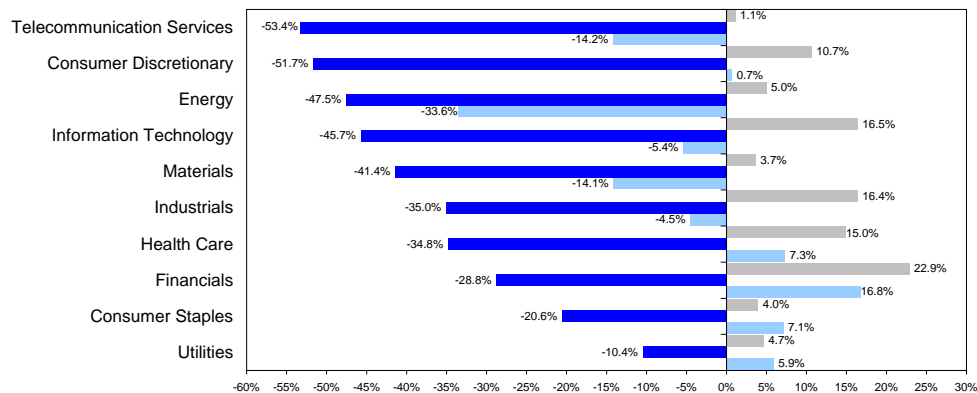
Small Cap Core Performance - Russell 2000 Index



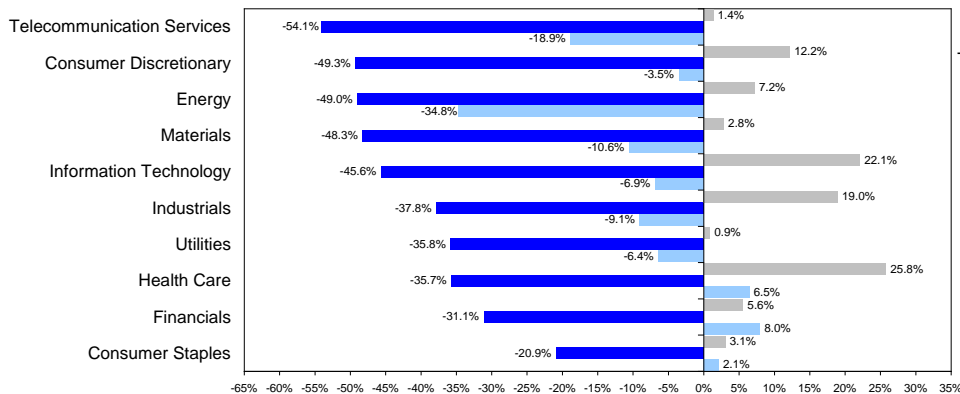
Small-Cap Stocks Style Breakdown

- The small-cap value stocks have outperformed the small-cap growth stocks, -33.0% compared to -41.7% in 2008 through November

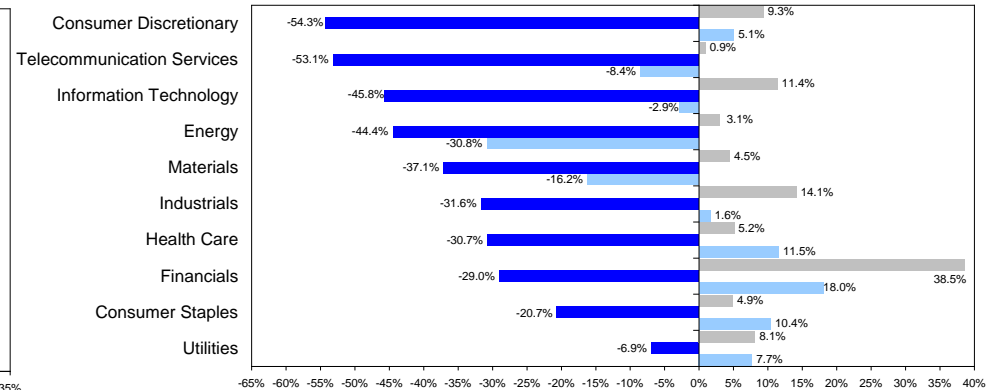
Small Cap Core Performance - Russell 2000 Index



Small Cap Growth Performance - Russell 2000 Growth Index



Small Cap Value Performance - Russell 2000 Value Index



■ GICS Sector YTD Performance ■ GICS Sector 3Q Performance ■ GICS Sector NOV Weighting

Third-Quarter Performance Predominantly Negative; Jan - Nov 2008 Returns Show Extraordinary Losses

- 3Q2008:
 - Mid-cap lagged across all market capitalizations
 - Small-cap value outperformed by a wide margin
- Jan-Nov 2008:
 - Growth and mid-cap struggled most
 - Small-cap value was the strongest performer

3rd Quarter Returns

	Growth	Core	Value
Large	-12.3%	-9.4%	-6.1%
Mid	-17.8%	-12.9%	-7.5%
Small	-7.0%	-1.1%	5.0%

January - November 2008 Returns

	Growth	Core	Value
Large	-39.5%	-38.6%	-37.7%
Mid	-46.3%	-43.9%	-41.3%
Small	-41.7%	-37.4%	-33.0%

Note: Russell 1000, Mid-Cap, 2000 Indices: Growth, Core Value

Three-Year and Cumulative Significantly Negative

- 3-Year Returns: – Large cap outperformed across all styles
– Mid-cap lagging continues
- Cumulative 3-Year: – Value outperformed growth

3 Year Returns as of November 2008

	Growth	Core	Value
Large	-9.7%	-9.1%	-8.6%
Mid	-12.5%	-11.6%	-11.1%
Small	-10.9%	-10.1%	-9.5%

Cumulative 3-Year as of November 2008

	Growth	Core	Value
Large	-26.5%	-24.9%	-23.5%
Mid	-33.1%	-31.0%	-29.8%
Small	-29.4%	-27.4%	-26.0%

Note: Russell 1000, Mid-Cap, 2000 Indices: Growth, Core Value

Five-Year Results Well Below Mid- and Long Term Expectations

- 5-Year Returns: – Only large- and mid-cap value had slightly positive returns
- Cumulative 5-Year: – Large-cap underperformed mid- and small-cap
 - Small-cap had strongest performance across all styles

5 Year Returns as of November 2008

	Growth	Core	Value
Large	-3.1%	-1.4%	0.1%
Mid	-2.8%	-1.0%	0.2%
Small	-3.3%	-1.6%	-0.2%

Cumulative 5-Year as of November 2008

	Growth	Core	Value
Large	-14.6%	-6.9%	0.6%
Mid	-13.4%	-4.7%	1.1%
Small	-15.4%	-8.0%	-1.1%

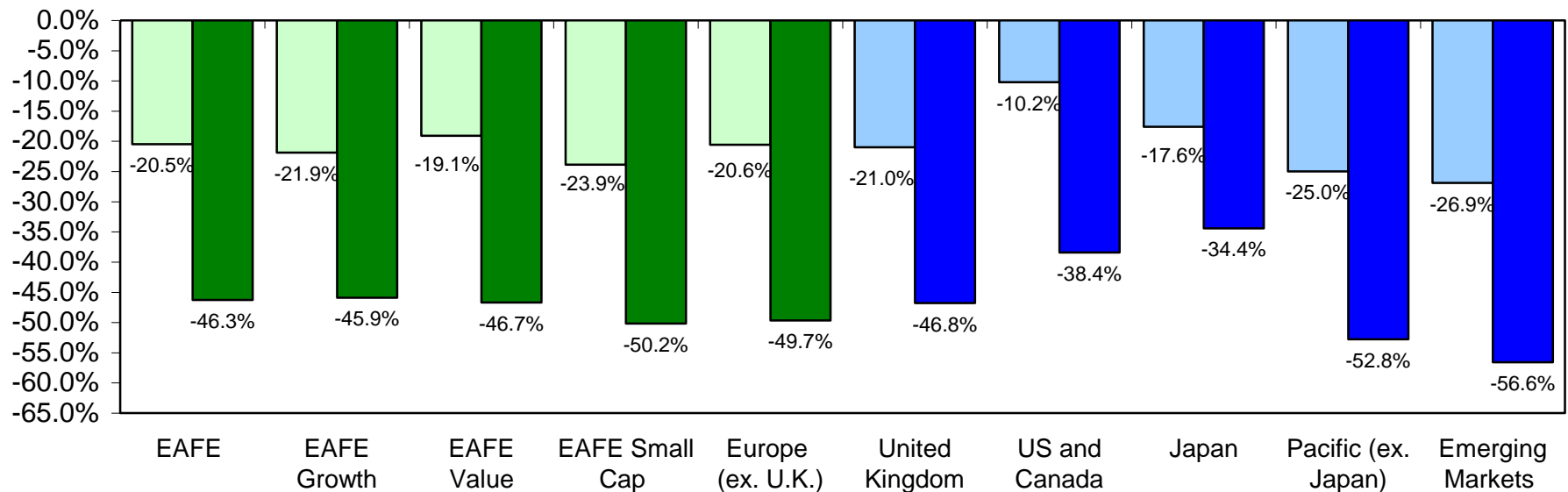
Note: Russell 1000, Mid-Cap, 2000 Indices: Growth, Core Value

International Equities – Developed Markets

Non-US Equities Underperformed US Equities

- MSCI EAFE declined 20.5% (gross) in the third quarter and declined 46.3% for the period January through November
- Japan, which represents 22.1% of the index, posted a -17.6% return. The UK, which represents 21.7% of the index, posted a -21.0% return
- All countries posted losses for the quarter

Non-US Equity Performance



□ 3Q 2008 ■ YTD 2008 □ 3Q 2008 ■ YTD 2008

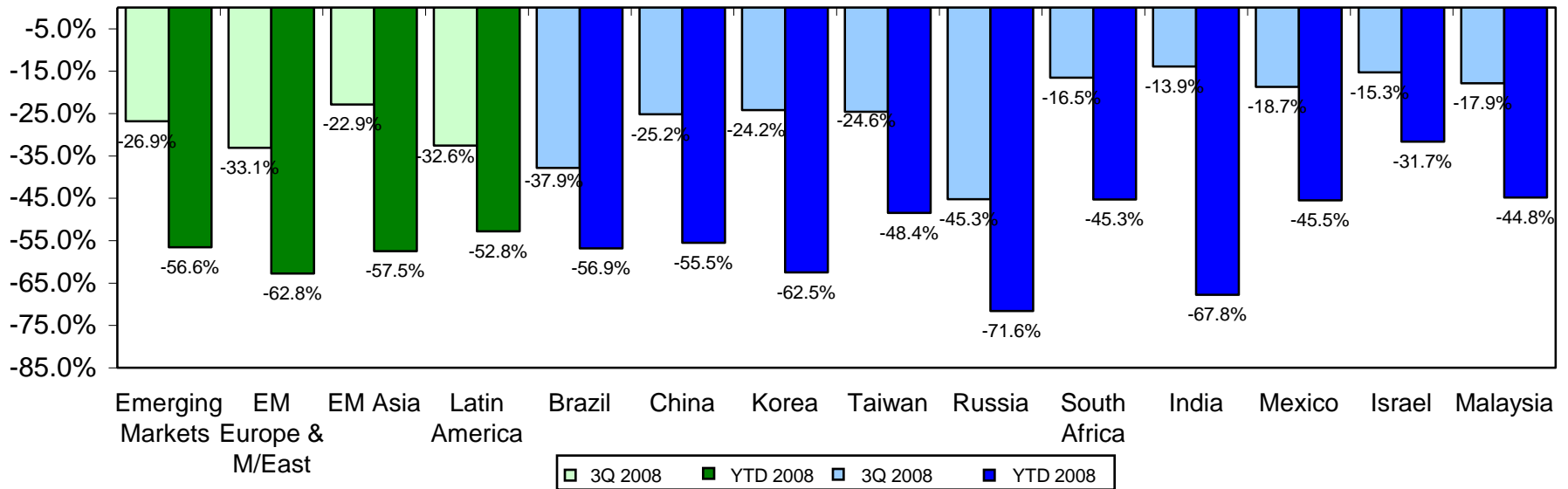
Source: MSCI

International Equities – Emerging Markets

Russia, China and India Post Largest Losses

- MSCI Emerging Markets Index declined 26.9% in the third quarter and declined 56.6% for the period from January through November
- Brazil, which represents 15.1% of the index, posted a negative 37.9% for the quarter China and Russia, which represent 14.4% and 8.4% of the index respectively, posted losses of 25.4% and 45.3% for the quarter
- The Philippines, which represents 0.5% of the index, is the only country to post a positive return, 3.6%, for the quarter

Emerging Markets Performance



Source: MSCI

International Equity Markets' Significant Losses

- Short-term performance:
Emerging market equities were hit harder than their developed counterparts
- Long-term performance:
Small-cap lag continues
- Performance convergence across styles and markets

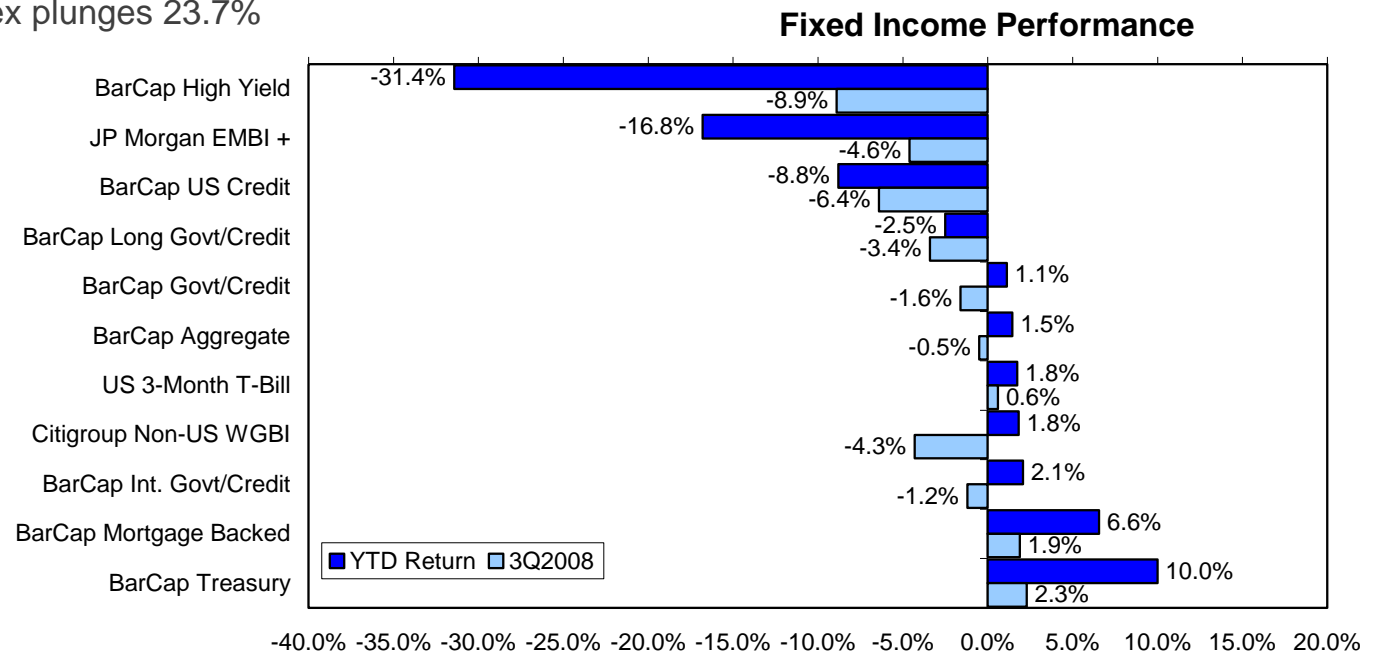
As of November 2008	3Q2008	YTD	3 Years	5 Years
MSCI AC Wld ex US	-21.8%	-48.5%	-7.3%	2.9%
MSCI AC Wld ex US Growth	-23.8%	-48.8%	-6.9%	2.2%
MSCI AC Wld ex US Value	-19.8%	-48.2%	-7.7%	3.6%
MSCI EAFE	-20.5%	-46.6%	-7.8%	2.0%
MSCI EAFE Growth	-21.9%	-46.1%	-6.9%	1.5%
MSCI EAFE Value	-19.1%	-47.1%	-8.7%	2.4%
MSCI EAFE SC	-23.9%	-50.4%	-13.5%	1.0%

Note: Net return Indices

U.S. Fixed Income

Investors Fled to Safety

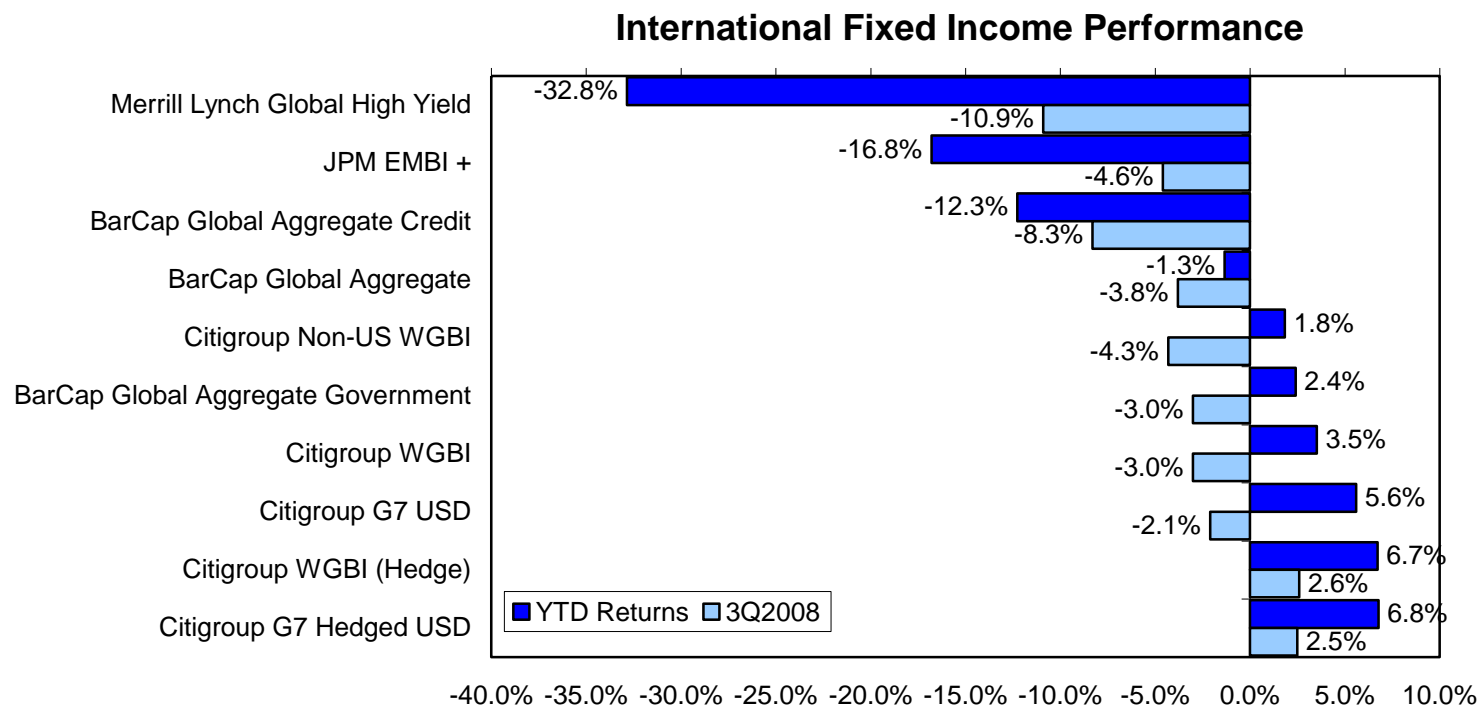
- The Federal Reserve Open Markets Committee enacted two consecutive cuts of the Federal Funds Target Rate. The first cut, on October 8, was done in coordination with central banks world wide during an emergency meeting
- Three-month T-bills ended November with a nearly flat yield, while 30-year Treasury bonds fell to record lows
- According to JPM, the CDS market was pricing in a cumulative 14% default rate for investment-grade bonds over the next 5 years, while the high-yield default swap index showed a 55% cumulative default rate for the same time period
 - The worst 5-year period of investment-grade defaults was 1987 – 1992 when the cumulative rate was 2.5%
- Barclays Aggregate Index recovered from October declines and gained 0.8% quarter-to-date
 - Corporate losses of 2.6% are led by a fall in utilities and industrials which lost 5.6% and 5.4% respectively.
 - Financials outperformed the index, with a 1.5% return driven mainly by government intervention
 - CMBS spreads soared because of an expectation of rising delinquencies
- Barclays US High Yield Index plunges 23.7%
 - The credit sector had a flight to quality as higher-quality investment-grade securities posted gains while non-investment-grade securities experienced a free fall



International Fixed Income

USD Rally Impacts Performance

- Bank of Canada, Bank of England, European Central Bank, Sveriges Riksbank, and Swiss National Bank experienced an emergency cut in key interest rates in conjunction with the Federal Reserve on October 8
- Japan and Eurozone declare that they are in a recession with Britain expected to announce similar news
- A rally in the US dollar as International Government bonds continued to weaken
 - Citigroup Non-US World Government Bond Index posted quarter-to-date gains of 3.1% in local currency terms, but only 0.6% in dollar terms
- The JP Morgan Emerging Market Bond Index Plus was down 12.3% QTD
 - A 13.8% October decline negated November gains of 1.8%



Real Estate

NAREIT & NCREIF Indices

Global Real Estate

Globally, the returns in the public REIT markets have been dismal. The real estate markets in Asia fell the most, declining 58.2% on a YOY basis, followed by Europe and North America, which declined 53.5% and 42.4% YOY respectively. Historically, public real estate has provided an average annualized return of around 8.7% since 1991

Public Real Estate

The NAREIT Index returned 4.5% for the third quarter of 2008 compared to -5.1% for the second quarter. For the year-to-date period, the index was down -45.9%

Private Real Estate

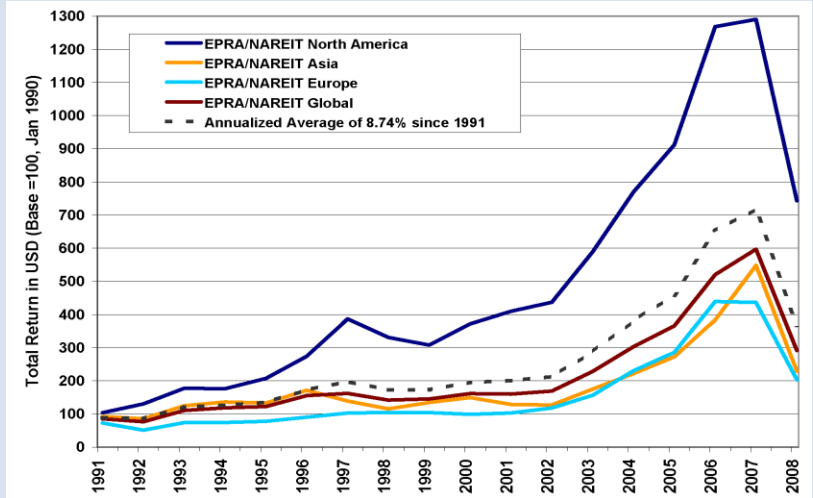
The NCREIF Property Index was up 0.6% for the second quarter of 2008 compared to 1.6% for the first quarter.

- -0.7% capital appreciation
- 1.3% income

Sector contribution:

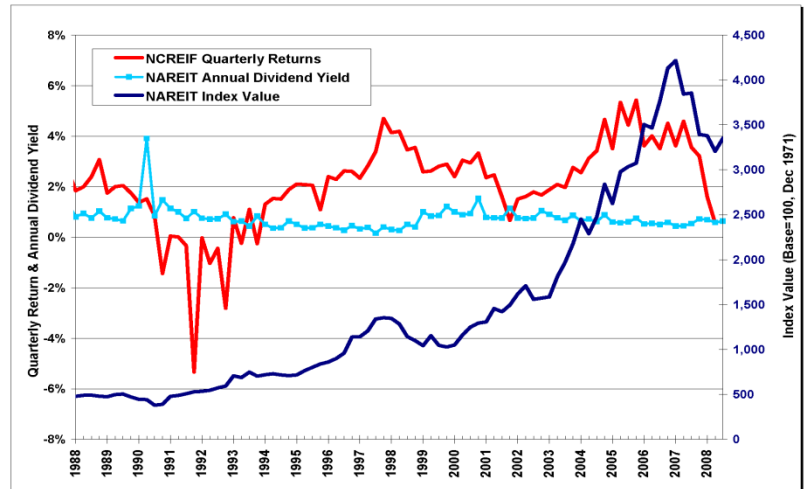
- Apartment 0.3%
- Industrial 0.9%
- Office 0.5%
- Hotel 0.4%
- Retail 0.7%

EPRA NAREIT Indices as of October 31, 2008



Source: EPRA

Public & Private Real Estate Market Performance



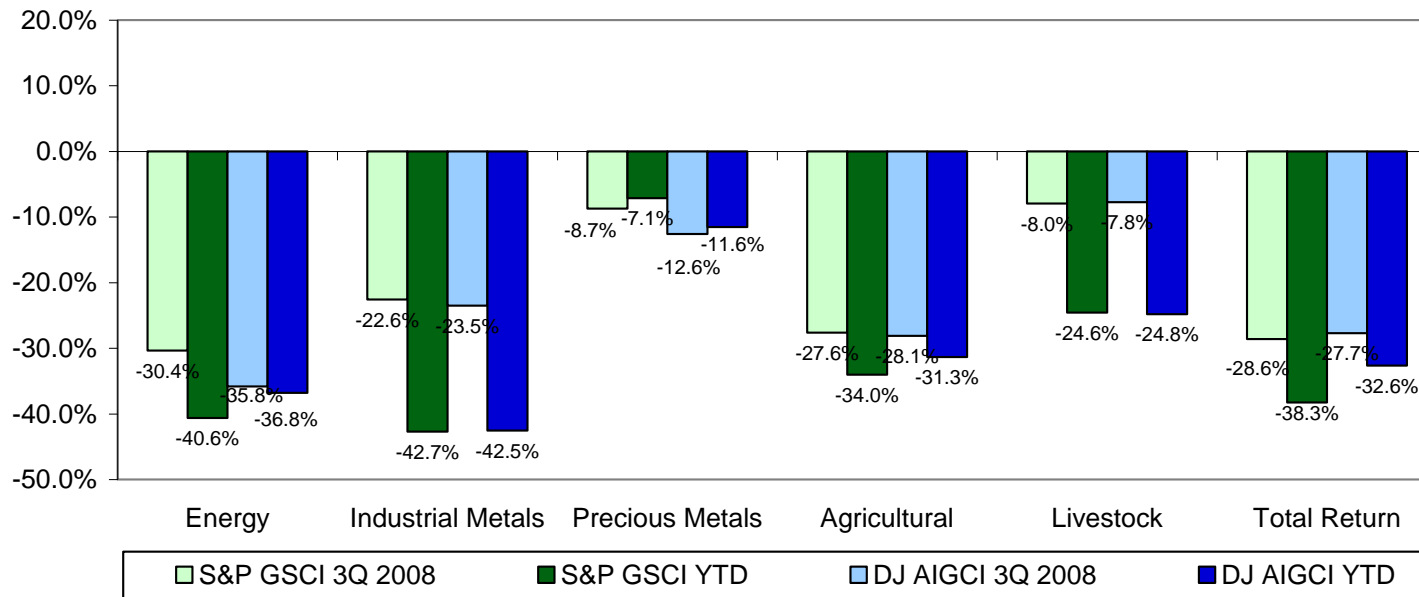
Source: NAREIT; NCREIF

Commodities

Declines Across All Sectors

- Since the end of the third quarter, the S&PGSCI has declined 38.9% and the DJ AIGCI has declined 26.8%. For the year, the S&P GSCI has posted a loss of 38.3% while the DJ AIGCI posted a loss of 32.6%
- The price of oil has continued to fall from its July peak of over \$145 as demand slowed and crude oil supplies grew. Since the end of the third quarter, oil has continued its downward trend, falling to \$55 at the end of November.
- A flight to quality is most evident as precious metals remains the strongest-performing sector for both the QTD and YTD periods. Since prior quarter-end, energy has been the worst performing sector for both indices, while industrial metals has been the worst-performing sector year-to-date.

Commodities Returns



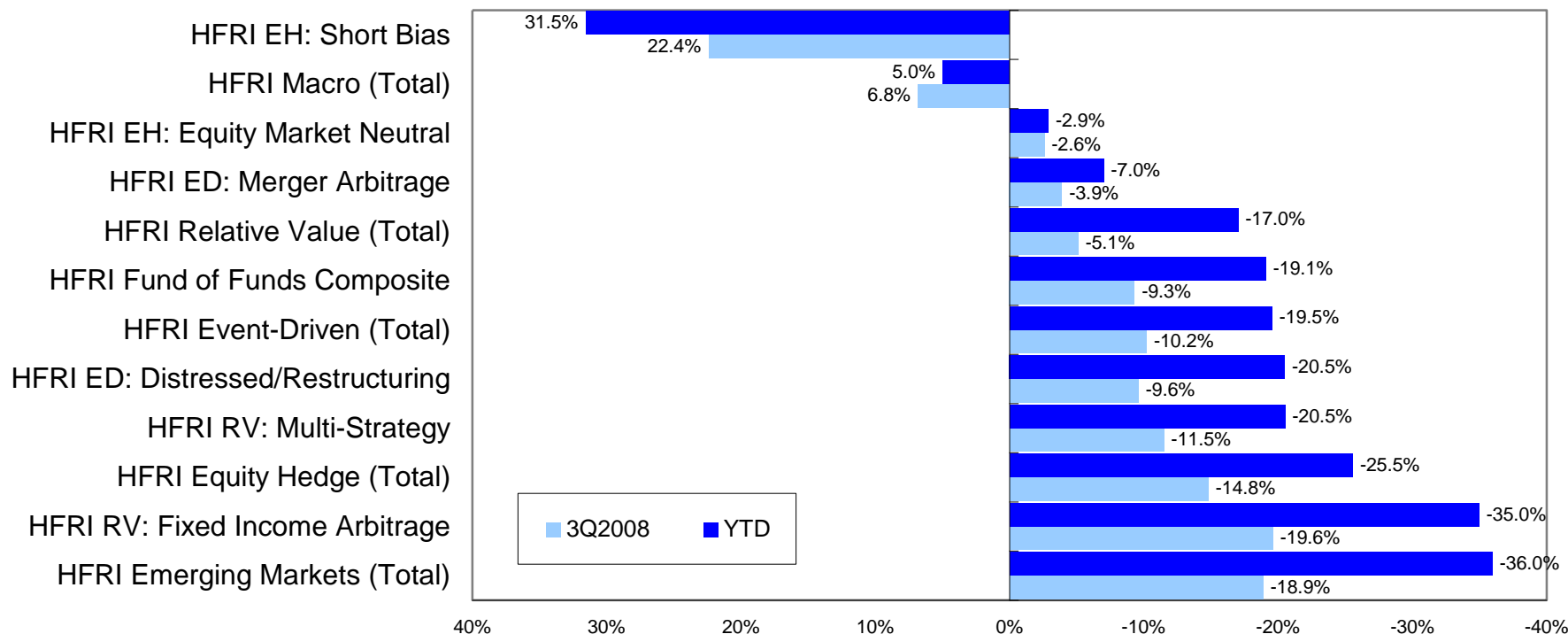
Sector Breakdown as of 11/28/2008

	Energy	Industrial Metals	Precious Metals	Agricultural	Livestock	Total
S&P GSCI	69.5%	6.4%	3.2%	15.6%	5.4%	100.0%
DJ AIGCI	30.6%	15.6%	12.3%	30.9%	10.6%	100.0%

Hedge Funds Under Pressure

- Year-over-year returns for most hedge fund strategies placed at or near the bottom percentile of their return distribution
- Short Bias, the only strategy that performed well, returned 22.4% for the third quarter and 31.5% as of November
- Emerging Markets and Fixed Income Arbitrage lost 35% and 36% as of November

Performance of Hedge Funds



Private Equity

Fundraising Drought in 3Q, Mixed for YTD

- Most “challenging era” of all time: Private equity firms raised \$82.3 bn during the third quarter, the lowest quarter since first quarter 2005
 - US: \$57.9B; Europe: \$11.9B; Asia and rest of the world: \$12.5 bn
 - Asia and RoW raised more capital than Europe did for the first time
- US Private Equity firms raised \$222.6B during the first three quarters of 2008, 11% higher than the \$200.4 bn raised during the same period last year:
 - Venture Capital: up 3% to \$19.7 bn year-to-date from \$19.1 bn same time last year
 - Leverage Buyout: down 12% to \$103.3 bn YTD from \$118 bn same time last year
 - \$27.9 bn announced in 3Q08, down from \$55.5 bn in 3Q07
 - Mezzanine Funds: \$36.9 bn raised YTD, compared to \$3 bn through 3Q last year
 - Distressed Debt: up 28% to \$37.9 bn YTD from \$29.5 bn same time last year
- Venture Capital exit strategies show lower transaction volume:
 - Going public: only 6 start-ups as of 3Q, lowest since 1977, compared to the same period last year, with 55 staged IPOs
 - Acquisition: 58 venture-backed firms sold in 3Q, compared with 102 in the same period last year. Average deal was \$146 mm compared with \$208 mm in 3Q07

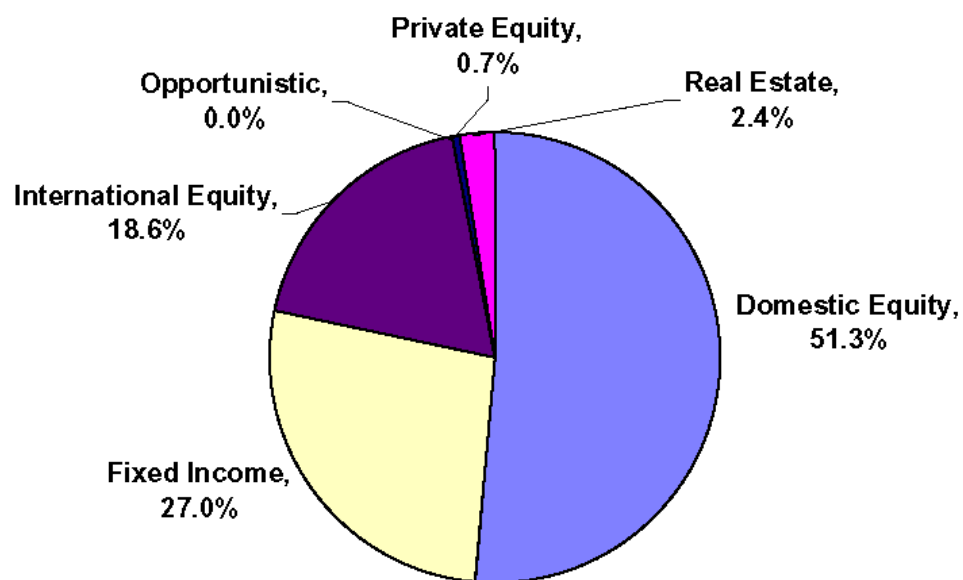
Source: Private Equity Intelligence (Prequin), Dow Jones Private Equity Analyst

ASRS Total Fund Performance

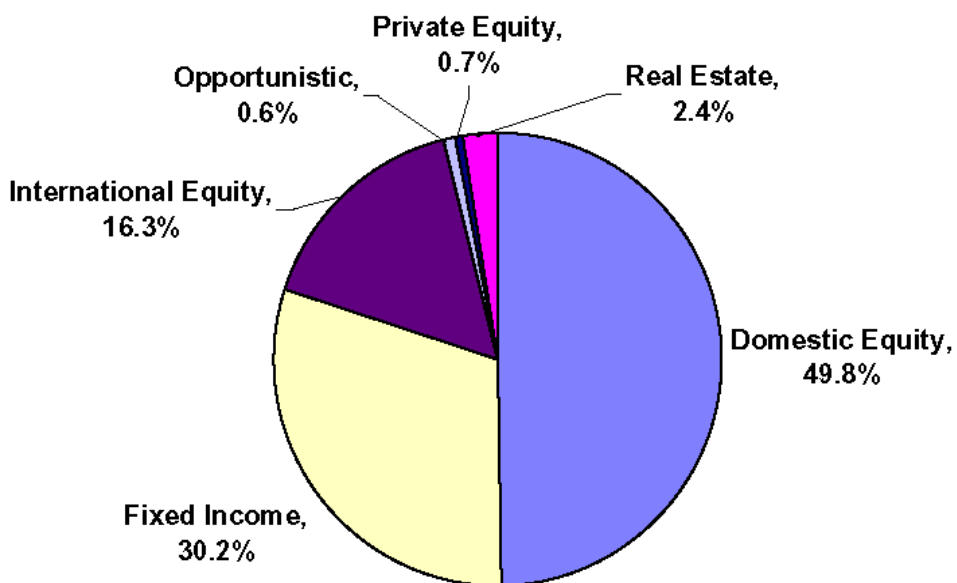
Total Fund Asset Allocation

September 30, 2008

**Policy Adjusted for Transition into
Real Estate and Private Equity**



Actual Asset Allocation*

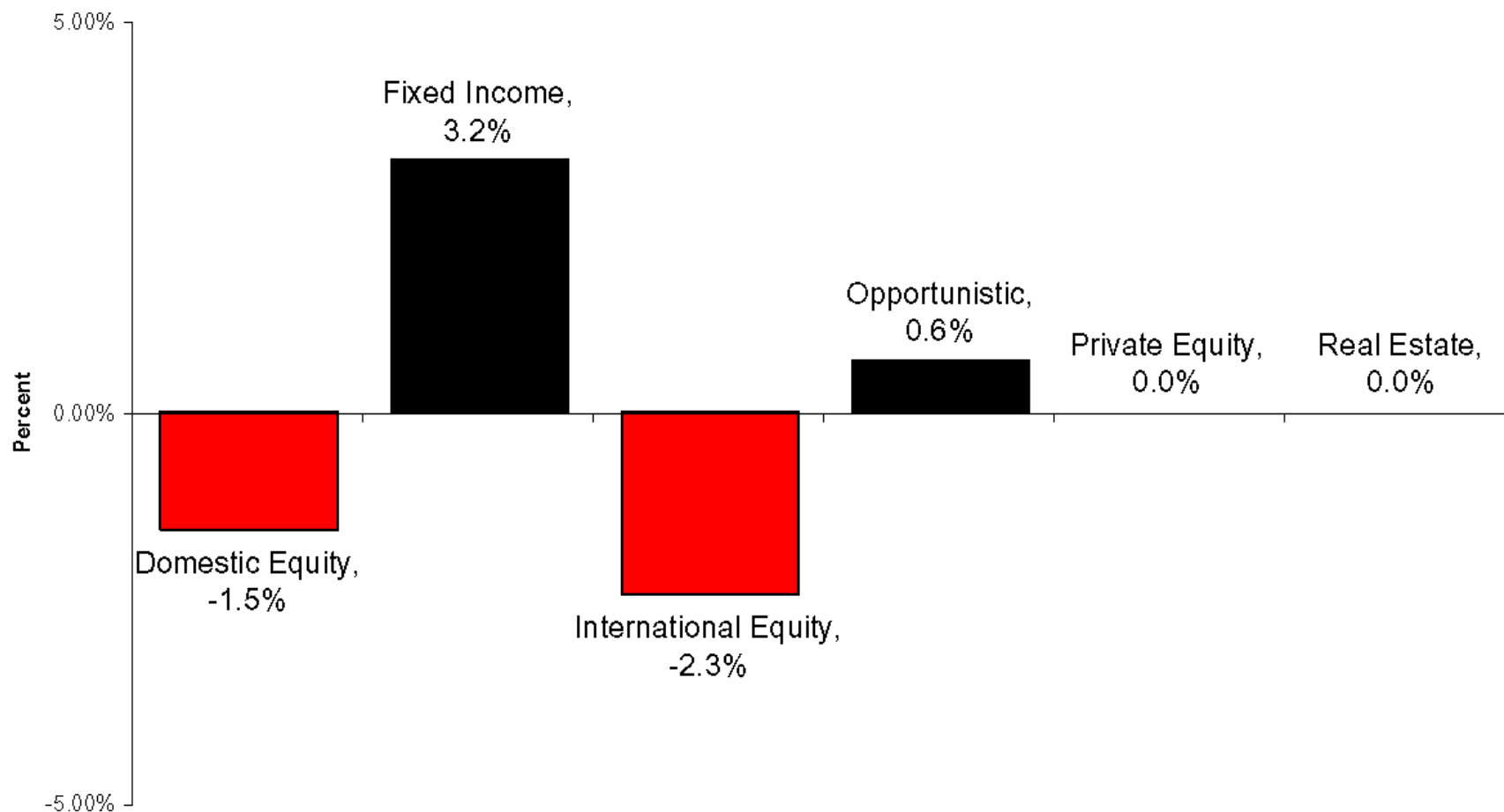


*Notional values were used for the GTAA strategy.

Note: Real Estate and Private Equity market values are reported on a quarter-lag. Within the Policy Adjusted for Transition chart, Real Estate was prorated to domestic equity, international equity, and fixed income while Private Equity was prorated to domestic equity

Total Fund Asset Allocation September 30, 2008

Actual Asset Allocation vs. Policy Adjusted for Transition into Real Estate and Private Equity



Total Fund Performance

For Periods Ending September 30, 2008

	<u>Quarter</u>	<u>1 Year</u>	<u>3 Years</u>	<u>5 Years</u>	<u>10 Years</u>	<u>Inception</u>
1) ASRS Total Fund (Net)	-8.2%	-16.3%	1.9%	6.2%	5.3%	10.1%
Benchmark*	-8.4%	-15.6%	2.5%	6.2%	4.5%	9.9%
Excess Return	0.2%	-0.7%	-0.6%	0.0%	0.8%	0.2%

* Interim Benchmark (current): 38% S&P 500, 7% S&P 400, 7% S&P 600, 27% LB Aggregate, 19% MSCI ACWI ex US, and 2% NPI+100 bps

Note: Interim Benchmark incorporates a proration of 4% real estate and 5% private equity

Policy History:

- 7/1/75-12/31/79 – 40% S&P 500/60% LB Aggregate
- 1/1/80-12/31/83 – 50% S&P 500/50% LB Aggregate
- 1/1/84-12/31/91 – 60% S&P 500/40% LB Aggregate
- 1/1/92-12/31/94 – 50% S&P 500/40% LB Aggregate/10% EAFE
- 1/1/95-6/30/97 – 45% S&P 500/40% LB Aggregate/15% EAFE
- 7/1/97-12/31/99 – 50% S&P 500/35% LB Aggregate/15% EAFE
- 1/1/00-9/30/03 – 53% S&P 500/30% LB Aggregate/17% EAFE
- 10/1/03-12/31/06 – 53% S&P 500/26% LB Aggregate/15% MSCI EAFE/ACWI ex US⁽¹⁾/6% NPI+100 bps
- 1/1/07-present – 31% S&P 500/7% S&P 400/7% S&P 600/26% LB Aggregate/18% MSCI ACWI ex US/6% NPI+100 bps/5% Russell 3000+300 bps

⁽¹⁾ MSCI EAFE/ACWI ex US Benchmark is the MSCI EAFE prior to 10/1/05 and the MSCI ACWI ex US thereafter

Total Fund Performance For Periods Ending September 30, 2008

	<u>1 Year</u>	<u>3 Years</u>	<u>5 Years</u>	<u>10 Years</u>	<u>Inception</u>
ASRS Total Fund (Net)	-16.3%	1.9%	6.2%	5.3%	10.1%
2) Actuarial Assumption Excess Return	8.0% -24.3%	8.0% -6.1%	8.0% -1.8%	8.0% -2.7%	7.6% 2.5%
3) Asset Allocation Target Excess Return	8.3% -24.6%	7.9% -6.0%	7.7% -1.5%	8.1% -2.8%	N/A N/A
4) CPI Inflation + 3.75% Excess Return	8.7% -25.0%	7.0% -5.1%	7.2% -1.0%	6.7% -1.4%	7.6% 2.5%
5) Wage Inflation + 3.75% Excess Return	8.6% -24.9%	8.0% -6.1%	8.5% -2.3%	7.9% -2.6%	8.3% 1.8%

Supplemental Comparison Information*

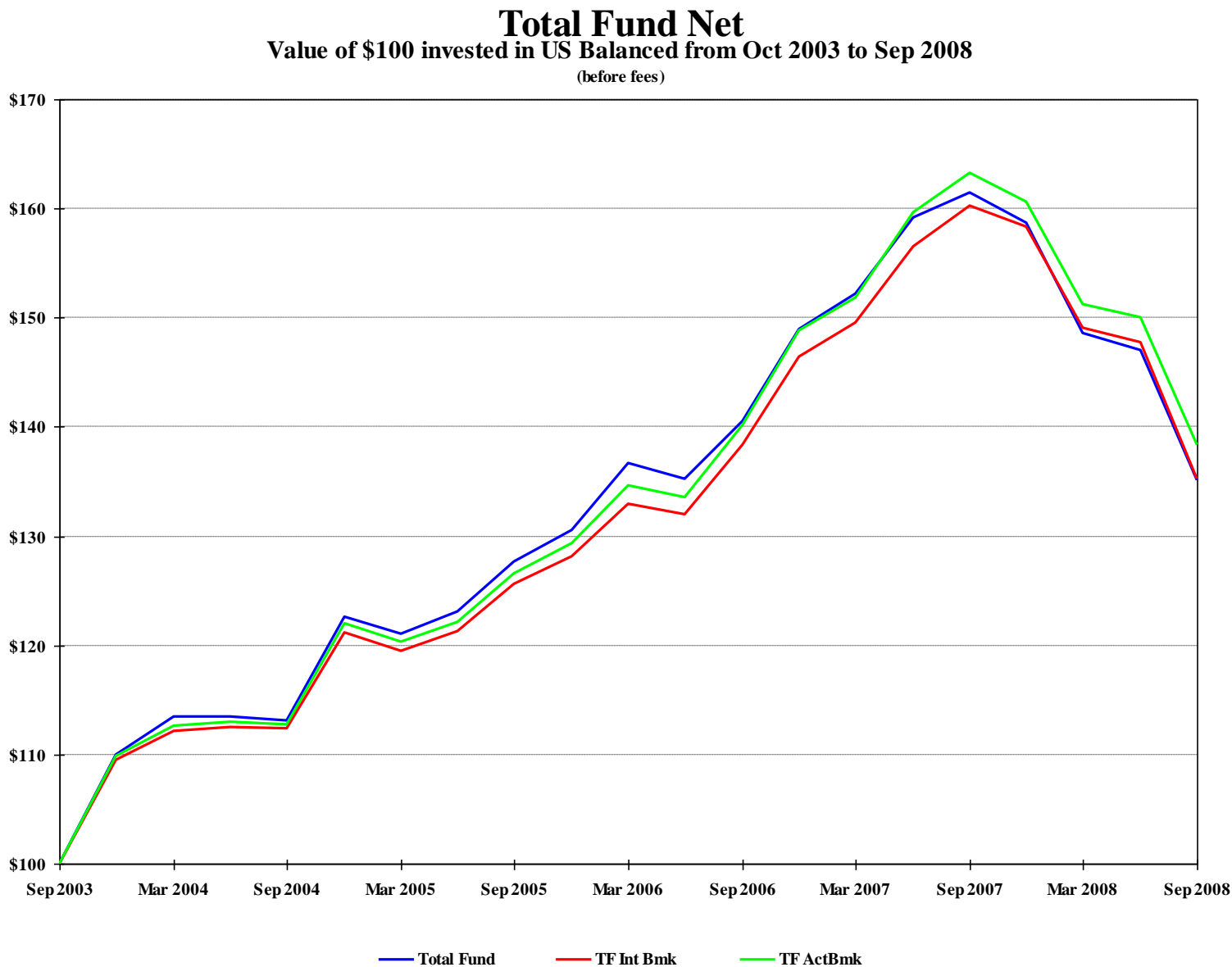
For Periods Ending September 30, 2008

	1 Year	3 Years	5 Years	10 Years	15 Years
Russell/Mellon Trust Universes					
Master Trust Funds - Total Funds	69	65	58	68	59
Total Funds - Public	70	72	63	82	54
Total Funds Billion Dollar - Public	71	79	73	90	57
Total Funds - Corporate	63	64	60	65	63
Wilshire Trust Universe Comparison Service					
Master Trusts - All	76	61	40	51	49
Public Funds	77	68	50	53	35
Public Funds Greater than \$1.0 Billion	86	86	69	55	42
Corporate	62	47	45	58	61
Callan Associates Inc.					
Total Funds	66	66	60	68	58
Public Funds	70	69	62	72	48
Public Funds - Large (>1B)	69	81	81	83	55
Corporate Funds	62	62	58	65	63

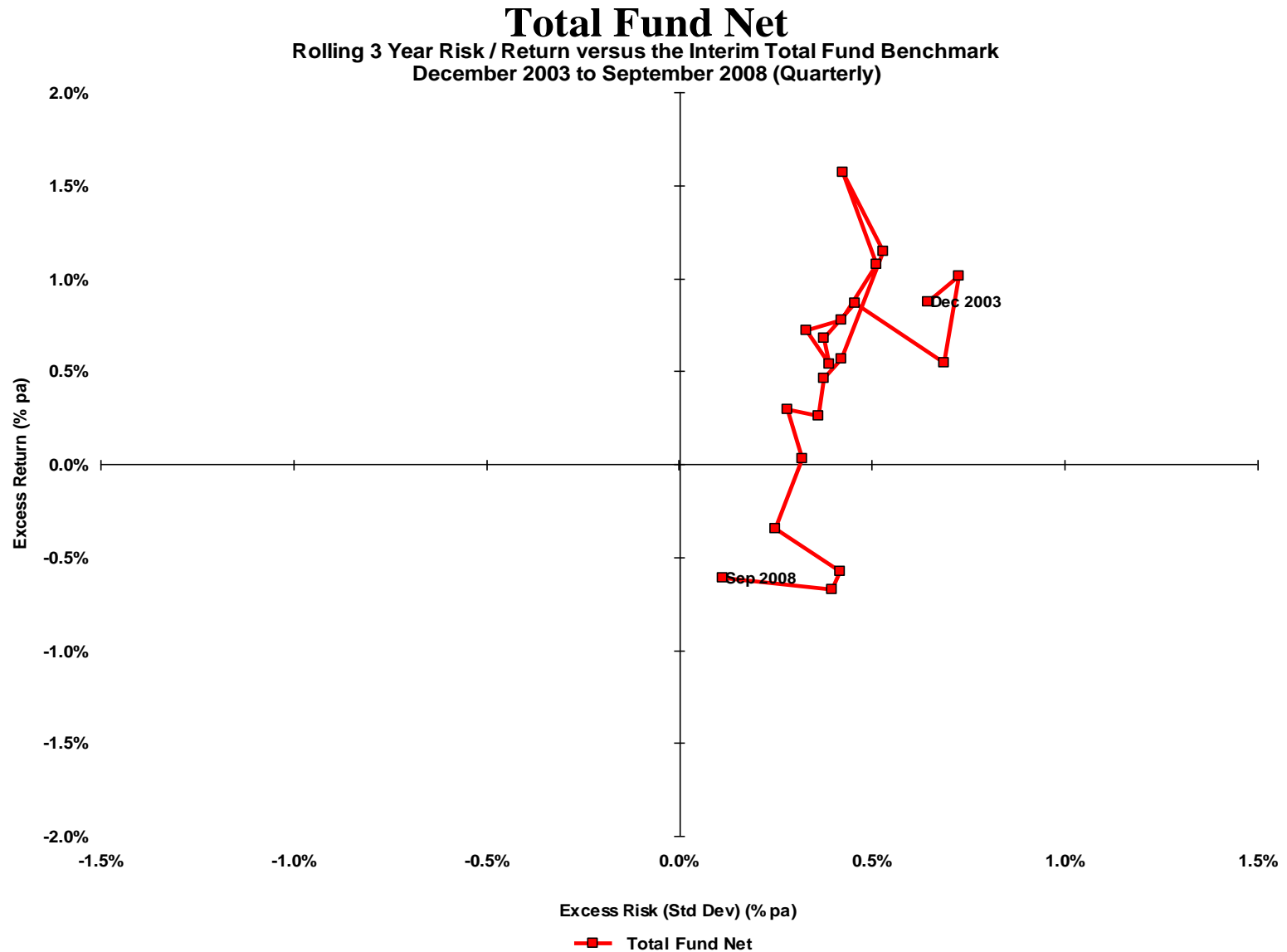
*The information contain herein is for comparison purposes only and is not a Total Fund performance benchmark. Peer universe comparisons are subject to several limitations, including: peer groups are not comprehensive, several funds are included in multiple peer groups, peer groups are constructed using gross of fees returns, and survivorship bias in that poorly performing funds may no longer continue to report results.

Note: Universes are constructed with gross of fees returns; therefore, the ASRS rank is based on gross of fees returns.

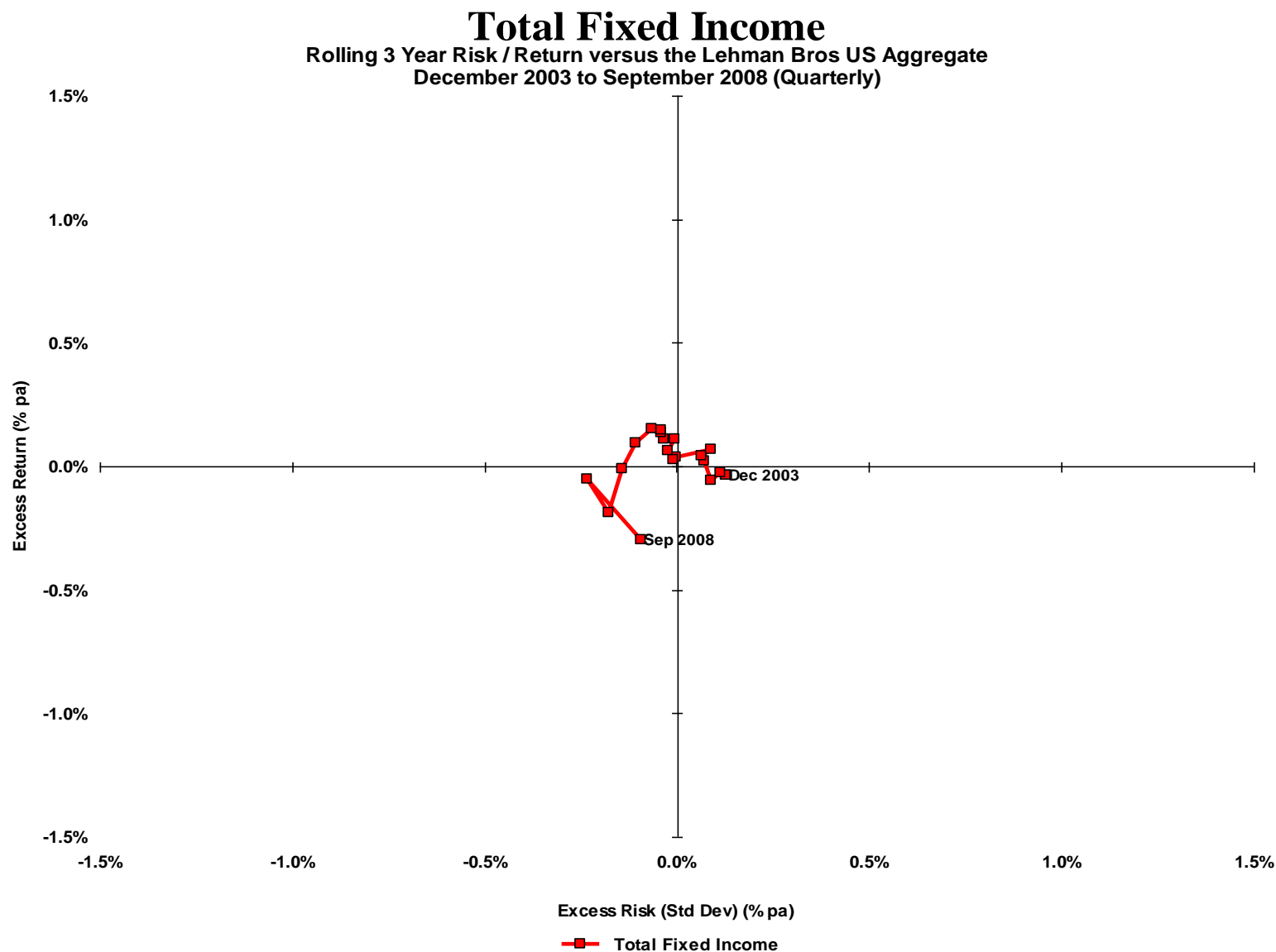
Total Fund Growth



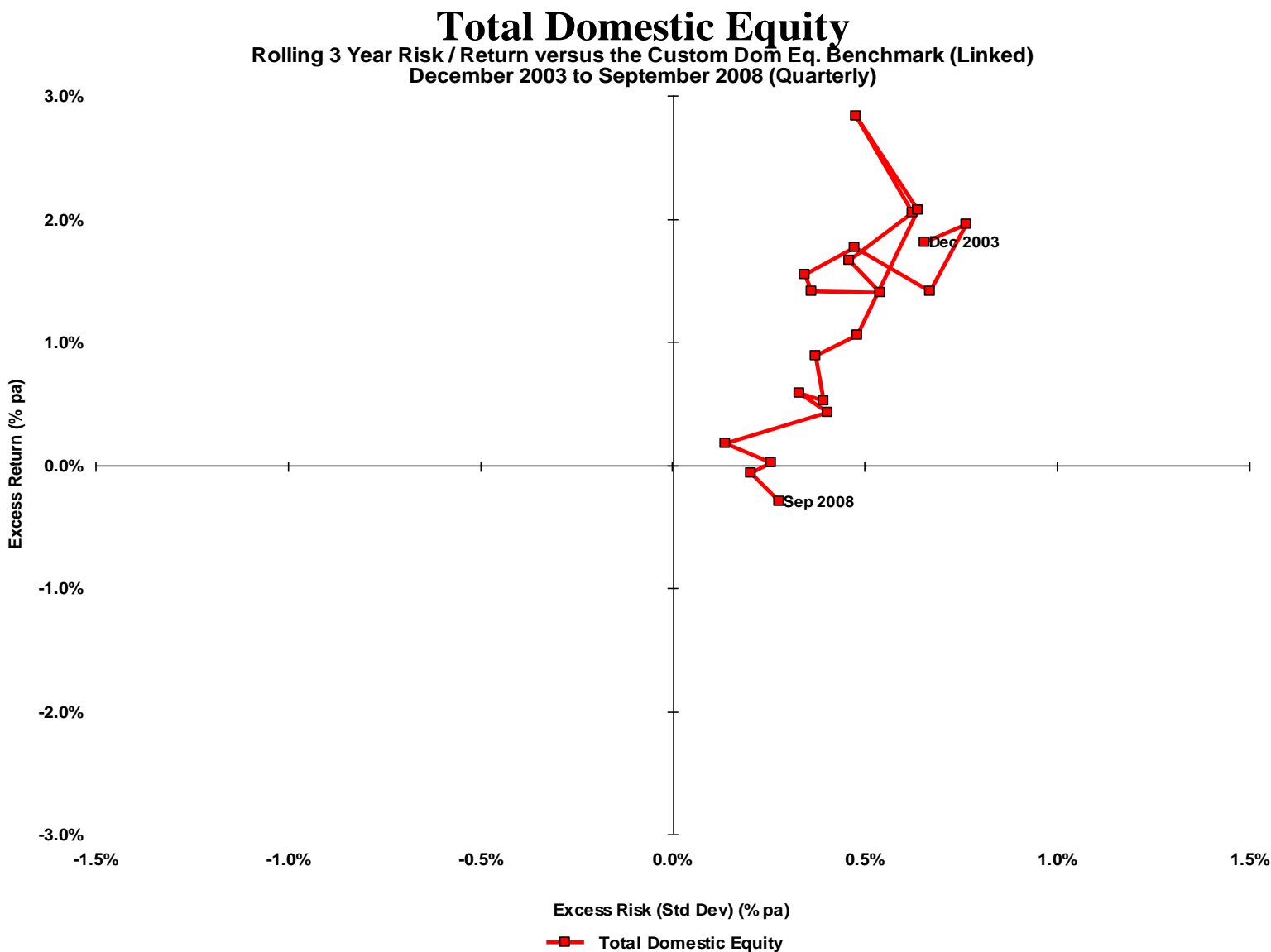
Risk/Return Analysis



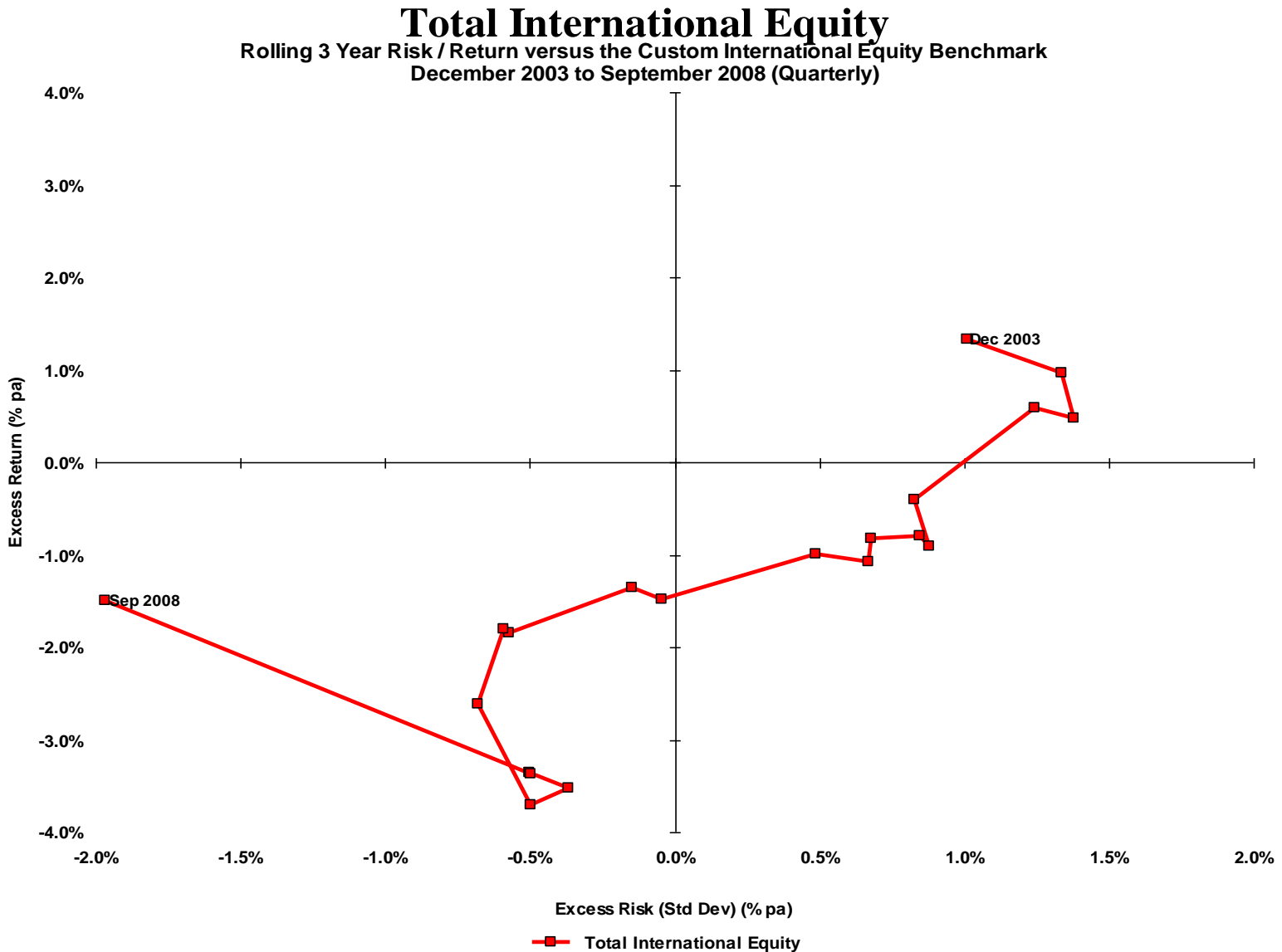
Risk/Return Analysis



Risk/Return Analysis



Risk/Return Analysis



Performance vs. Benchmarks

For the 3 Years Ending September 30, 2008

	<u>Return</u>	<u>Assumed ROR</u>	<u>Std. Dev.</u>
Total Fund	1.9%	7.9%	8.8%
Benchmark ⁽¹⁾	2.5%		8.7%
Domestic Fixed	3.9%	4.8%	3.2%
LB Aggregate	4.2%		3.3%
Domestic Equity	0.6%	8.6%	10.7%
S&P Custom Bmk ⁽²⁾	0.9%		10.4%
Intl. Equity	1.6%	8.8%	16.2%
MSCI Custom Bmk ⁽³⁾	3.1%		18.2%
Real Estate	N/A	7.2%	N/A

⁽¹⁾ Interim Benchmark (current): 38% S&P 500, 7% S&P 400, 7% S&P 600, 27% LB Aggregate, 19% MSCI ACWI ex US, and 2% NPI+100 bps

Note: Interim Benchmark incorporates a proration of 4% real estate and 5% private equity

⁽²⁾ S&P 500 prior to 1/1/07 and 74% S&P 500, 13% S&P 400, 13% S&P 600 thereafter

⁽³⁾ MSCI EAFE/ACWI ex US Benchmark is the MSCI EAFE prior to 10/1/05 and the MSCI ACWI ex US thereafter

Performance vs. Benchmarks

For the 5 Years Ending September 30, 2008

	<u>Return</u>	<u>Assumed ROR</u>	<u>Std. Dev.</u>
Total Fund	6.2%	7.7%	8.8%
Benchmark ⁽¹⁾	6.2%		8.4%
Domestic Fixed	3.6%	4.7%	3.5%
LB Aggregate	3.8%		3.5%
Domestic Equity	6.1%	8.5%	10.9%
S&P Custom Bmk ⁽²⁾	5.6%		10.4%
Intl. Equity	9.5%	8.7%	16.0%
MSCI Custom Bmk ⁽³⁾	11.1%		17.2%
Real Estate	N/A	7.4%	N/A

⁽¹⁾ Interim Benchmark (current): 38% S&P 500, 7% S&P 400, 7% S&P 600, 27% LB Aggregate, 19% MSCI ACWI ex US, and 2% NPI+100 bps

Note: Interim Benchmark incorporates a proration of 4% real estate and 5% private equity

⁽²⁾ S&P 500 prior to 1/1/07 and 74% S&P 500, 13% S&P 400, 13% S&P 600 thereafter

⁽³⁾ MSCI EAFE/ACWI ex US Benchmark is the MSCI EAFE prior to 10/1/05 and the MSCI ACWI ex US thereafter

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GUY CARPENTER OLIVER WYMAN